

SS 305



SS 305 (UNS S30500)

SS 305 is an austenitic Chromium-Nickel stainless steel with excellent corrosion resistance, and is suitable for very severe cold forming operations. A high nickel content reduces the work hardening rate so that it can be formed into electronic components and remain non-magnetic.

GENERAL INFORMATION

The alloy is readily formable and work hardens slowly. It has good resistance to nitric and sulfuric acid solutions although it will not resist halogen acids. The alloy can be satisfactorily welded, brazed, and soldered.

AVAILABILITY

SS 305 is available from Hamilton Precision Metals as strip product in thicknesses from 0.0005" to 0.050" (0.0127 mm to 1.27 mm) in widths up to 12.0" (304.8 mm). It is also available in foil as thin as 0.000200" (0.00508 mm) in widths of 4.0" (101.6 mm) maximum. The material conforms to ASTM A240, QQS-766, and UNS S30500.



Technical Data

TYPICAL MECHANICAL PROPERTIES ¹		
	ANNEALED	COLD ROLLED
Ultimate Tensile Strength	80,000 PSI	180,000 PSI
Yield Strength (0.2% Offset)	35,000 PSI	160,000 PSI
Elongation in 2" *	55%	3%
Modulus of Elasticity (Tension)	28 X 10 ⁶ PSI	-
Poisson's Ratio	0.25	-

* The measured elongation will be less as thickness decreases to 0.002" and less.

¹ These values may be adjusted by control of process variables – consult HPM for desired values.

NOMINAL COMPOSITION	
Chromium	18.8%
Nickel	11.8%
Manganese	0.9%
Silicon	0.6%
Carbon	0.04%
Iron	Balance

PHYSICAL PROPERTIES ²	
Density	0.29 lbs./cu.in.
Melting Point (Approx.)	1400°C
Electrical Resistivity @ R.T.	74 Microhm · cm
Thermal Expansion Coefficient (0° to 100°C)	17.3 x 10 ⁻⁶ /°C
Thermal Conductivity @ 100°C	16.2 W/m · K
Magnetic Attraction	Annealed – None
Magnetic Permeability @ 175 KSI (H = 100 oersteds)	1.068

² Typical values to guide alloy selection but are not a guarantee of minimum or maximum.