

# STAINLESS STEEL 420



## SS 420 (UNS S42000)

SS 420 is a heat treatable martensitic chromium stainless steel. Melt practice is controlled to develop a surface nearly free from defects. It provides the best combination of wear resistance and corrosion resistance, and is used in demanding medical accessories.

### GENERAL INFORMATION

The alloy can be cold formed from the annealed temper. Welding should be accomplished by pre and post heating. Pre-heating at 450° F and post-heated at 1300° F will prevent cracking. The corrosion resistance is optimized in the heat treated temper and assured by passivation. It is resistant to water and organic materials. Oxidation resistance remains favorable in most applications up through 1200°F.

### AVAILABILITY

SS 420 is available from Hamilton Precision Metals as strip product from 0.001" to 0.060" (0.0254 mm to 1.524 mm) in widths up to 12.0" (304.8 mm). The material conforms to UNS S42000.



## Technical Data

TYPICAL MECHANICAL PROPERTIES <sup>1</sup>			
	ANNEALED	COLD ROLLED	HEAT TREATED
Ultimate Tensile Strength	85,000 PSI	120,000 PSI	250,000 PSI
Yield Strength (0.2% Offset)	50,000 PSI	90,000 PSI	200,000 PSI
Elongation in 2" *	25%	10%	5%
Hardness (DPH - 1000 Grams)	200	220	540
Modulus of Elasticity (Tension)	29 x 10 <sup>6</sup> PSI	-	-
Poisson's Ratio	0.24	-	-

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

<sup>1</sup> These values may be adjusted by control of process variables - consult HPM for desired values.

NOMINAL COMPOSITION	
Chromium	12.5%
Manganese	0.50%
Silicon	0.50%
Nickel	0.20%
Carbon	0.22%
Iron	Balance

PHYSICAL PROPERTIES <sup>2</sup>	
Density (Heat Treated)	0.28 lbs/cu.in.
Melting Point (Approx.)	1460°C
Electrical Resistivity @ R.T.	55 Microhm · cm
Thermal Expansion Coefficient (0° to 100°C)	10.3 x 10 <sup>6</sup> /°C
Thermal Conductivity @ 100°C	24.9 W/m · K
Magnetic Attraction	Yes

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