

# NITRONIC 60 STAINLESS

Nitronic 60 Stainless is known for its excellent galling resistance, even at elevated temperatures. The additions of 4% silicon and 8% manganese inhibit wear, galling, and fretting. It is commonly used for various fasteners and pins that require strength and resistance to galling. It maintains decent strength up to temperatures of 1800°F and has oxidation resistance similar to that of 309 stainless steel. The general corrosion resistance is between that of 304 and 316 stainless steel.

## SPECIFICATIONS

**UNS:** S21800; **ASTM:** A 193, Class 1C, A 276, A 479; **AMS:** 5848; **ASME:** SA-193, SA-276, SA-479

## CHEMICAL COMPOSITION %

	Ni	Cr	Mn	Si	C	N	S	P	Fe
<b>MIN</b>	8.0	16.0	7.0	3.5	--	0.08	--	--	--
<b>MAX</b>	9.0	18.0	9.0	4.5	0.10	0.18	0.03	0.06	balance

## FEATURES

- Wear and galling resistant alloy

## APPLICATIONS

- Fasteners
- Pins and bushings
- Wear rails
- Roller bearings
- Pump components

## PHYSICAL PROPERTIES

**Density:** 0.275 lb/in<sup>3</sup> **Electrical Resistivity:** 589 ohm circ-mil/ft

Temperature, °F	70	200	400	600	800	1000	1200	1400	1600	1800
<b>Coefficient of Thermal Expansion* in/in<sup>0</sup>F x 10<sup>6</sup></b>	--	8.8	9.2	9.6	9.8	10.0	10.3	10.5	10.7	11.0
<b>Modulus of Elasticity Dynamic, psi x 10<sup>6</sup></b>	--	26.2	--	--	--	--	--	--	--	--

- 70°F to indicated temperature

## MECHANICAL PROPERTIES

### Minimum Specified Properties, ASTM A 276 Bar

<b>Ultimate Tensile Strength, ksi</b>	95
<b>0.2% Yield Strength, ksi</b>	50
<b>Elongation, %</b>	35
<b>Reduction of area, %</b>	55
<b>Hardness MAX, Brinell</b>	241

### Typical Tensile Properties Annealed Bar $\frac{3}{4}$ - 1"

<b>Temperature, °F</b>	68	200	400	600	800	1000	1200	1400	1600
<b>Ultimate Tensile Strength, ksi</b>	106.5	98.2	84.4	80.5	78.3	75.4	66.6	49.8	30.2
<b>0.2% Yield Strength, ksi</b>	56.5	44.4	32.8	29.7	29.0	28.0	28.1	25.3	16.4
<b>Elongation, 2%</b>	61.7	63.3	64.0	59.6	65.5	52.2	48.2	47.1	72.8