Nitronic® 60

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^{0}F and has oxidation resistance similar to that of 309 stainless steels. The general corrosion resistance is between 304 and 316 stainless steels.

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
MIN	8.0	16.0	7.0	3.5	--	0.08	--	--	--
MAX	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^3 **Electrical Resistivity**: 589 ohm circ-mil/ft

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

- 70^{0}F to indicated temperature

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MECHANICAL PROPERTIES

Minimum Specified Properties, ASTM A 276 Bar

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

Typical Tensile Properties Annealed Bar ¾ - 1"

Temperature, ^{0}F	68	200	400	600	800	1000	1200	1400	1600
Ultimate Tensile Strength, ksi	106.5	98.2	84.4	80.5	78.3	75.4	66.6	49.8	30.2
0.2% Yield Strength, ksi	56.5	44.4	32.8	29.7	29.0	28.0	28.1	25.3	16.4
Elongation, 2%	61.7	63.3	64.0	59.6	65.5	52.2	48.2	47.1	72.8