Nitronic® 50 (XM19)

Nitronic 50 (XM-19) Stainless is a high strength and good corrosion resistant austenitic stainless steel. It has nearly double the yield strength of 304 and 316 stainless steel and has better corrosion resistance than 317L stainless steel. Nitronic 50 (XM-10) Stainless remains non-magnetic even after being severely cold worked. It maintains strength at high temperatures as well as sub-zero temperatures.

SPECIFICATIONS

UNS: S20910; **W.Nr./EN**: 1.3964; **ASTM**: A276; **NACE**: MR0175; **ISO:** 15156-3

CHEMICAL COMPOSITION %

	Ni	Cr	Mo	Mn	Si	C	N	S	P	Cb	V	Fe
MIN	11.5	20.5	1.5	4.0	--	--	0.2	--	--	0.1	0.1	--
MAX	13.5	23.5	3.0	6.0	1.0	0.06	0.4	0.03	0.045	0.3	0.3	balance

FEATURES

- High strength austenitic alloy
- Good corrosion resistance

APPLICATIONS

- Seawater pump shafts
- Heat exchangers
- Pressure vessels
- Marine hardware

PHYSICAL PROPERTIES

Density: 0.285 lb/in^3 **Melting Range**: 2579-2642^{0}F **Electrical Resistivity**: 492 ohm circ-mil/ft

Temperature, ^{0}F	70	200	300	400	600	800	900	1000	1200	1400
Coefficient of Thermal Expansion* in/in^{0}F x 10^6	--	90	--	9.2	9.6	9.9	--	10.2	10.5	10.8
Thermal Conductivity btu•ft/ft^2 •hr •^{0}F	108	--	108	--	124	--	141	--	160	--
Modulus of Elasticity Dynamic, psi x 10^6	28.9	27.8	27.0	26.1	24.6	--	--	--	--	--

70^{0}F to indicated temperature

Nitronic® 50 (XM19)

MECHANICAL PROPERTIES

Minimum Specified Properties, ASTM A 276 Bar

Ultimate Tensile Strength, ksi	100
0.2% Yield Strength, ksi	55
Elongation, %	35
Reduction of area, %	55

Typical Tensile Properties

Temperature, ^{0}F	-320	-100	75	200	400	600	800	1000	1200	1350	1500
Ultimate Tensile Strength, ksi	--	--	117	107	96	92	89	84	74	66	52
0.2% Yield Strength, ksi	--	--	60	50	38	35	34	32	31	31	30
Elongation, 2%	--	--	45	43.5	43.5	42.5	43.5	41	38	37	41
Impact Strength, ft-lbs	50	115	170	--	--	--	--	--	--	--	--