

N-50 (XM-19) 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. N-50 (XM-19) remains non-magnetic even after being severely cold worked. It maintains strength at high temperatures as well as sub-zero temperatures.

Chemistry

	Ni	Cr	Mo	Mn	Si	C	N	S	P	Nb	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	bal

Per ASTM A276

Specifications

UNS: S20910

W. Nr./EN: 1.3964

ASTM: A276, A479

ASME: SA-276, SA-479

NACE: MR0175

ISO: 15156-3

Physical Properties

Density	0.285 lb/in ³
Melting Range	2579-2642°F
Poisson Ratio	0.31
Electrical Resistivity	32.3 μΩ • in
Coefficient of Thermal Expansion (68°F - 212°F)	9.0 μin/in •°F
Thermal Conductivity (300°F)	9.0BTU/(hr•ft•°F)
Modulus of Elasticity (68°F)	28.5 • 10 ⁶ psi

Mechanical Properties

Specification: A276

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

*Values Are Minimums Unless Otherwise Stated

Typical Tensile Properties

Temperature, °F	Ultimate Tensile Strength, ksi	0.2% Yield Strength, ksi	Elongation, %	Impact Strength, ft-lbs
-320	-	-	-	50
-100	-	-	-	115
75	117	60	45	170
200	107	50	44	-
400	96	38	44	-
600	92	35	43	-
800	89	34	44	-
1000	84	32	41	-
1200	74	31	38	-
1350	66	31	37	-
1500	52	30	41	-

*Annealed

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Features

- High strength austenitic alloy
- Good corrosion resistance

Applications

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

