



GALLING RESISTANT, HIGH STRENGTH, PUMP SHAFT STAINLESS STEEL

Mir50 is a precipitation hardening, martensitic stainless steel that is well-documented to provide toughness, high strength, corrosion resistance and galling resistance in severe service applications. Well-known as the “4340 of the stainless world”.

Mir50 is engineered to extend service life, provide optimum performance and minimize downtime.

KEY FEATURES

Manufacturing Process – state of the art metallurgical refinement.

Corrosion Resistance – similar to that of type-316L stainless; engineered for use in severe service applications.

High Strength – thermally hardened martensitic stainless alloy; similar strength levels to a 4340 Q&T alloy bar.

Galling Resistance – compatible with almost every other stainless grade, as well as carbon and alloy steels. Parts come apart easily for inspection, replacement or repair.

Straightness – pump shaft straightened; TGP stock only.

Excellent Low Temperature Properties – excellent mechanical properties at low service temperatures.

Double Stress Relieved – shipped virtually free of retained stress; offers “low memory” properties.

Ease of Machining – machines easily, is not gummy, and will hold a bright finish.

TYPICAL MECHANICAL PROPERTIES*

Hardness, Brinell	258/294 BHN (NACE)
Tensile Strength	140,000 PSI
Yield Strength	108,000 PSI
Machinability	50%
Elongation in 2"	26%
Reduction of Area	65%
Charpy “V” Notch Impact	105 @ 70°F

*Based on 1/2" Test Specimen

Replaces most other commercial stainless steels, as 304L, 316L, 410, 416, 17-4PH and 15-5PH depending upon the requirement.

AGENCY CONCURRENCE

NACE MR-01-75-97 revision, AMS-5763 (chemistry only), FDA, and API-6A

SERVICE TEMPERATURE

800°F (constant); 1200°F (intermittent)
Excellent oxidation resistance to 1200°F

AVAILABLE SIZES*

TGP – 1/4" up to 6-1/2" Rounds In Stock
RTOS – 3/4" up to 10" Rounds In Stock
Also Available In Heavy Hollow Sections

*Certain sizes may have modified analysis relative to production requirements.

AVAILABLE LENGTHS

10/12 Ft R/L, 20/24 Ft R/L, Extra Long Lengths
Possible & Custom Cut-To-Length Options

GENERAL COMPARISON CHART

	Mir50® Stainless	304L and 316L Commercial Grade Stainless	410 and 416 Commercial Grade Stainless
Corrosion Resistance	Excellent	Excellent	Moderate ¹
Sour Service Use	Excellent	Poor	Acceptable
High Strength	Superior	Low	Moderate
Galling Resistance	Excellent	Poor / Parts Can Seize and Gall	Moderate / Parts Can Seize and Gall
Wear Resistance	Superior (Up To Wear Plate Hardness 400BHN)	Low	Moderate
Service Temperature	800°F (constant)	1100°F / 1400°F	1100°F
Tensile Strength (typ.)	140,000 PSI	304L = 70,000 PSI 316L = 75,000 PSI	410 = 120,000 PSI 416 = 124,000 PSI
Yield Strength (typ.)	108,000 PSI	304L = 25,000 PSI 316L = 30,000 PSI	410 = 90,000 PSI 416 = 110,000 PSI
Chemistry	Rich Alloy Blend	Typical 18-8	Modified For H.T.
Thermal Hardenability	Excellent	Not Applicable ³	Moderate
Magnetic	Yes	No	Yes
Machinability	Excellent	Poor	Moderate
Weldability	Good	Good	Moderate ²
Shock Resistance	Excellent	Excellent	Good
Retained Stress	Double Stress Relieved - Less Movement	High Degree of Retained Stress	Moderate
Pump Shaft Straightness	Yes (TGP Only)	Optional With Caution	Optional
Lengths	Up To 25 Ft	Typically 11/13 Ft	Typically 20/24 Ft
Finish Options	RTOS (Rough Turned Over-size) & TGP ("Near" Bearing -Fit, Precision Finish)	Cold Drawn/Peeled (Plus or Minus Tolerance), TGP	Hot Roll, TGP

All information provided above is for general sales and marketing, it is not to be utilized for engineering purposes.

¹ Corrosion resistance is sacrificed for hardenability.

² 416 stainless is a resulphurized grade. Welding to be avoided.

³ Does not respond to heat treatment. Strain hardened or cold work only.

Quality Commitment: Associated Steel Corporation is certified to the latest ISO Quality Standards.



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