



Resource Guide

**CHROMIUM NICKEL**

**MANGANESE MOLYBDENUM**

WEIGHTS & TYPES



# Nitronic 50 - UNS S20910

## Stainless Bars

### Color Markings

Annealed Bars—Gold with White Stripe

Pump Shafting—Yellow with White Stripe

Nitronic 50 is a chromium-nickel-manganese-molybdenum austenitic stainless steel that remains completely nonmagnetic after severe cold working or exposure to low temperatures. Its unique feature is the combination of higher strength and better corrosion resistance than the more widely used austenitic stainless grades.

## Analysis

<b>C Max.</b>	<b>Mn</b>	<b>P Max.</b>	<b>S Max.</b>	<b>Si Max.</b>	<b>Cr</b>
.06	4.00/6.00	.040	.030	1.00	20.3/23.5
<b>Ni</b>	<b>Mo</b>	<b>N</b>	<b>Cb</b>	<b>V</b>	
11.5/13.5	1.50/3.00	.20/.40	.10/.30	.10/.30	

## Specifications

The following specifications are generally applicable: ASTM A276 & A479 Grade XM19, AMS 5764

## Applications

This grade is used for components and equipment where general corrosion resistance superior to that of Type 316 is required. Applications include pump and boat shafting, valves, fasteners, etc. It may be used in Food Contact Surfaces under the provisions of various National Sanitation Foundation standards. Its low magnetic permeability good mechanical properties, and corrosion resistance are useful in instrumentation components.

## Corrosion Resistance

Corrosion resistance to industrial and marine environments is generally better than that of Type 316 and 316L. Its resistance to intergranular attack in the heat affected zone of heavy weldments is excellent.

## Resistance to Scaling

Excellent at temperatures up to 2000°F in continuous service.

## Mechanical Properties

Applicable specifications require the following minimum properties of material in the annealed condition:

Tensile (psi)	Yield (psi)	Elongation, %	Reduction of Area %	Brinell
100,000	55,000	35	55	241

## Machinability

Machinability rating of Nitronic 50 is approximately 39% based on 1212 rated as 100%. Surface cutting speed on automatic screw machines is approximately 65 feet per minute.

## Weldability

Easily fusion welded by conventional methods with welded joints in the as-welded condition having a strength approaching that of the base metal.

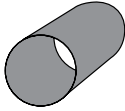
## Forming

The same fabricating equipment and techniques that apply to the 300 series stainless grades may be used.

## Annealing

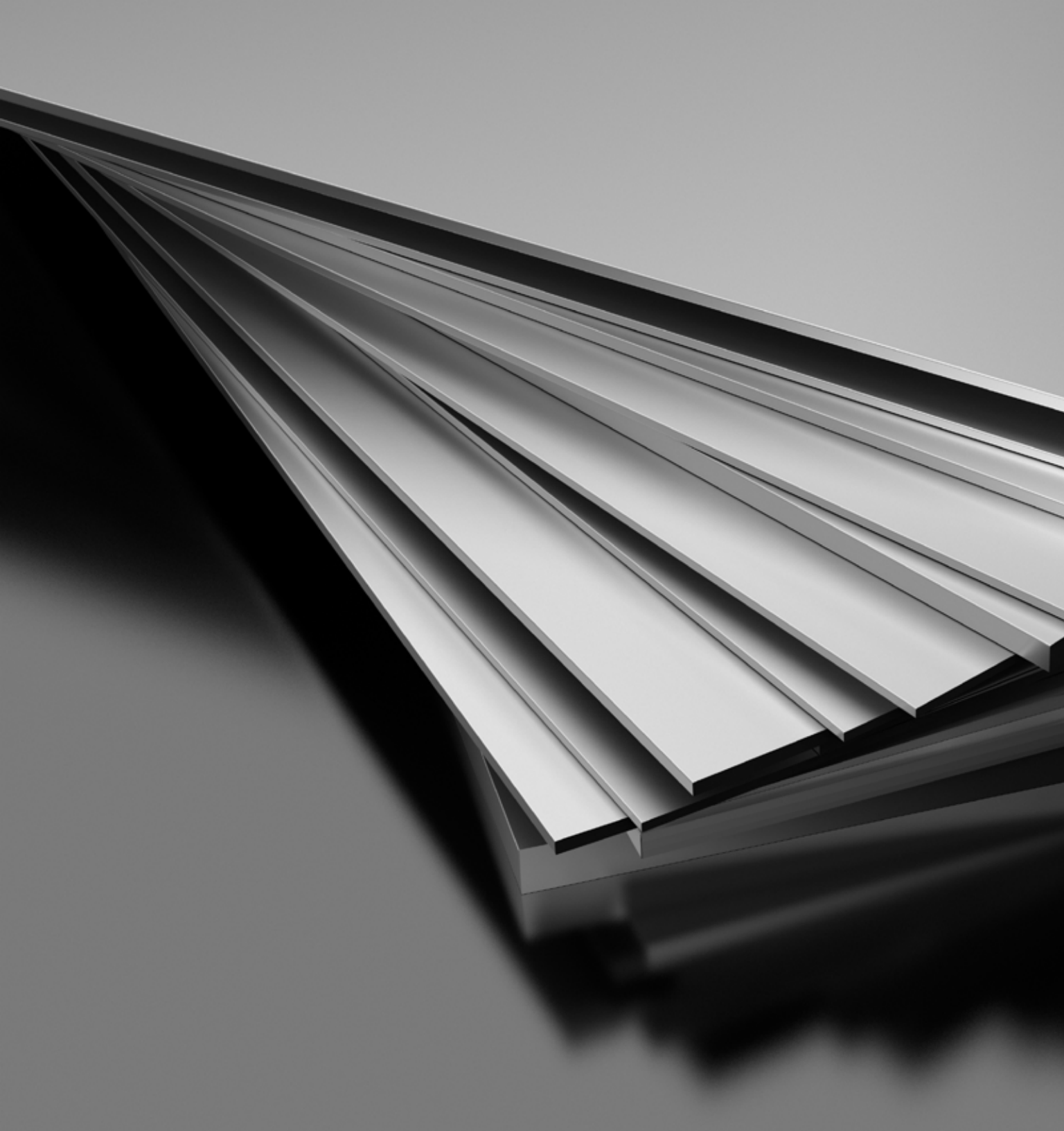
Heat to 1950°F and cool rapidly. If as-welded material is to be used in strongly corrosive media, 2050°F is recommended.

# Nitronic 50 Rounds



Size in Inches	Est. Wt. Lbs.		Size in Inches	Est. Wt. Lbs.	
	Per Sq. Foot	12-Ft. Bar		Per Sq. Foot	12-Ft. Bar
<b>Annealed &amp; Ground</b>			<b>Precision Pump Shafting</b>		
1/2	.6682	8.019	3/4	1.504	30.07
5/8	1.044	12.53	13/16	1.765	35.29
3/4	1.504	18.04	7/8	2.046	40.93
7/8	2.046	24.56	<b>1</b>	2.673	53.46
<b>1</b>	2.673	32.07	1/8	3.383	67.66
1/4	4.176	50.12	3/16	3.769	75.38
3/8	5.053	60.64	1/4	4.176	83.53
1/2	6.014	72.17	7/16	5.523	110.5
3/4	6.186	98.23	1/2	6.014	120.3
2	10.69	128.3	11/16	7.612	152.2
1/4	13.53	162.4	3/4	8.186	163.7
1/2	16.71	200.5	15/16	10.03	200.7
3/4	20.21	242.6	<b>2</b>	10.69	213.8
<b>3</b>	24.06	288.7	3/16	12.79	255.8
<b>Hot Rolled Annealed</b>			1/4	13.53	270.6
3 3/4	37.59	451.0	7/16	15.88	317.6
4 3/4	60.31	723.7	11/16	19.31	386.1
<b>5</b>	66.82	801.9	15/16	23.06	461.3
1/4	73.67	884.0	<b>3</b> 11/16	36.35	726.9

Note: Stock lengths 10' to 12'. Except Pump Shafting 20'-1" to 24'- 1"





7405 E Slauson Ave, Commerce, CA 90040

(562) 216-4000

**Toll Free: 800-388-8998**

**[www.paragonsteel.com](http://www.paragonsteel.com)**