G. O. Carlson Plate Products

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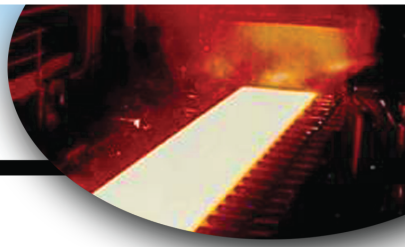

CARLSON ALLOY NITRONIC® 30 (UNS S20400) PRODUCT DATA BULLETIN

Nitrogen-strengthened austenitic stainless steel providing good aqueous corrosion resistance combined with resistance to abrasives and metal-to-metal wear. Higher mechanical properties than standard austenitic grades. Outstanding corrosive wear resistance under many different sliding conditions. Galling resistance equivalent to 304.

GENERAL PROPERTIES AND TYPICAL APPLICATIONS

Nitronic® 30 is a nitrogen-strengthened austenitic stainless steel developed for applications requiring good aqueous corrosion resistance combined with good resistance to abrasive and metal-to-metal wear. Nitronic® 30 has annealed mechanical properties which are well above those of typical austenitic grades such as 304. This higher strength affords the opportunity to reduce thickness at equivalent engineering loads.

Galling resistance of Nitronic® 30 is approximately equal to 304. It work hardens rapidly while retaining good ductility. Unlike other nitrogen-strengthened stainless steels, Nitronic® 30 is subject to magnetic transformation when cold worked.

Nitronic® 30 exhibits outstanding corrosive wear resistance under many different sliding conditions. It is more cost effective than 409 and 304 which are typically used in web abrasive applications.

The alloy possesses good corrosion resistance in many different environments. Pitting resistance is better than 304. In sulfuric and hydrochloric acids, Nitronic® 30 is superior to 409 and 410, and approaches 304 in dilute solutions.

Nitronic® 30 is markedly more resistant to stress corrosion cracking in hot chloride solutions at lower stress levels than 304 and 304L. At higher levels the chloride stress corrosion cracking resistance approximates 304 and 304L.

APPLICATIONS:

Coal handling equipment – screens, chute liners, buckets and hopper cars.

Water supply and control structures.

Sewage treatment plant structures.

Mining equipment – magnetic ore separator screens.

Bulk solids handling equipment – conveyor parts.

Mixing tanks.

Wear plates now using less cost-effective materials such as abrasion resistant steels, 409 or 304 stainless steels.

Transport and vibratory equipment where fatigue resistance is a major design criteria.

Shipboard containers.

CHEMICAL COMPOSITION (NOMINAL ANALYSIS, PERCENT)

Carbon, max.	0.030
Manganese, max.	7.00 min. – 9.00 max.
Silicon, max.	1.00
Sulfur, max.	0.030
Phosphorus, max.	0.040
Chromium	15.00 min. – 17.00 max.
Nickel	1.50 min. – 3.00 max.
Nitrogen	0.15 min. – 0.30 max.

AVAILABLE PRODUCTS*

Plate	3/16" and thicker. Widths to 108", lengths to 480" *For larger dimensions – inquire.*
Plate Products	plasma cut or machined rings and discs, cut bar, heads, rolled and tack-welded cylinders, and special cut shapes

* Bar, billet, ingot and master alloy pigs are available from: ELECTRALLOY, a G.O. Carlson Inc. company, 175 Main Street, Oil City, PA 16301 (800) 458-7273

MECHANICAL AND PHYSICAL PROPERTIES

Tensile Strength, psi, min.	95,000 (655 MPa)
Yield Strength (0.2% offset), psi, min.	48,000 (310 MPa)
Elongation in 2 in. (50.8 mm), or 4D, %, min.	35
Hardness, Brinell, max.	241
Rockwell B, max.	100
Density, grams per in.	7.86
lb. per cu. cm.	0.284
Modulus of Elasticity, tension, psi x 10^6	28.0
Typical Magnetic Permeability (annealed)	
Field Strength Oersteds **Permeability**	
100 1.011	
200 1.011	
500 1.014	
1000 1.015	

SPECIFICATIONS

ASME SA240
ASTM A240
ASTM A666

Information in this product data bulletin is not intended for specification purposes. All data should be considered as typical or average, except when listed as minimum or maximum values.

The applications cited will allow a potential user to consider this Carlson alloy for a particular installation. But none of the information is to be construed as a warranty of fitness for any application.

As with all special-service materials, this alloy must be tested under actual service conditions to determine its suitability for a specific project.

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Unsurpassed experience with specialty metals

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