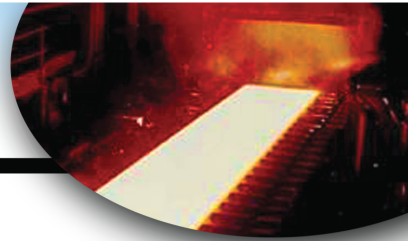




G.O. Carlson Plate



CARLSON ALLOY EC400 (UNS N04400) PRODUCT DATA BULLETIN

Excellent combination of high strength, ductility, weldability and corrosion resistance. Widely used for handling sulfuric acid under reducing conditions. Good resistance to hydrofluoric acid, alkaline and neutral salts.

GENERAL PROPERTIES AND TYPICAL APPLICATIONS

Carlson Alloy EC400 is a nickel-copper alloy which provides an excellent combination of high strength, ductility, good weldability and resistance to corrosion over a wide range of temperatures and conditions.

EC400 exhibits high yield and tensile strengths during exposure to cryogenic temperatures.

This alloy cannot be hardened by heat treatment, only by cold working. It is generally free from stress corrosion cracking.

APPLICATIONS:

EC400 provides excellent service for marine applications, including continued or intermittent exposure to high-velocity brackish or seawater. This alloy is also widely used for handling sulfuric acid under reducing conditions. It is one of the few materials that offers good resistance to hydrofluoric acid.

EC400 can be utilized over a wide range of temperatures for fluorine, dry chlorine, and hydrogen chloride service. It exhibits useful resistance to hydrochloric acid up to 10% concentrations at room temperature. This alloy, however, has poor resistance to

highly oxidizing acids such as nitric and nitrous acids.

EC400 exhibits excellent resistance to non-oxidizing halides and good resistance to neutral and alkaline salts such as carbonates, sulfates, nitrates and acetates.

- Chemical Processing Equipment – heat exchangers, reactors and vessels; caustic evaporators; pumps, valves and piping for processing hydrofluoric, hydrochloric and sulfuric acids, fluorine, dry chlorine, hydrogen chloride and hydrogen fluoride gases, non-oxidizing halides and neutral and alkaline salts.
- Marine Components – pumps, valves, piping, shafts and fixtures used in sea and brackish water.
- Petroleum Refining – crude distillation towers, accumulator tanks, condensers, isomerization units, hydrofluoric and sulfuric acid alkylation units, vessels, heat exchangers and piping.
- Power Industry – expansion bellows, feedwater heaters, other heat exchangers and cooling tower fans.
- Electrical and Electronic Components.

CHEMICAL COMPOSITION (NOMINAL ANALYSIS, PERCENT)

Carbon, max.0.3
 Manganese, max.2.0
 Silicon, max.0.5
 Sulfur, max.0.024

Iron, max.2.5
 Copper28.00 min. – 34.00 max.
 Nickel *63.0

* Element shall be determined arithmetically by difference.

AVAILABLE PRODUCTS*

Plate	3/16" through 4" Widths to 126", lengths to 480" <i>For larger dimensions – inquire.</i>
Plate Products	cut bar, plasma cut or machined rings and discs, 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

	CONDITION	
	Annealed	As Rolled
Tensile Strength, psi, min.	70,000	75,000
Yield Strength (0.2% offset), psi, min.	28,000	40,000
Elongation in 2 in., %, min.	35	25
Density, grams per cu. cm.	8.83	
lb. per cu. in.	0.319	

SPECIFICATIONS

ASME SB127
ASTM B127
ASM 4544
QQ-N-281

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 application 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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