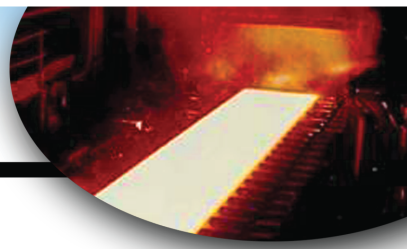
G. O. Carlson Plate Products

G.O. Carlson Plate



CARLSON ALLOY EC625 (UNS N06625) PRODUCT DATA BULLETIN

Excellent strength. Superior resistance to oxidation at temperatures up to 2000˚F. Outstanding resistance to corrosion and stress corrosion cracking in many environments. Exceptional fatigue strength and toughness at cryogenic and elevated temperatures.

GENERAL PROPERTIES AND TYPICAL APPLICATIONS

Carlson Alloy EC625 is a nickel-chromium-molybdenum alloy that combines high strength and oxidation resistance with excellent corrosion resistance. EC625 exhibits exceptional fatigue strength and superior strength and toughness over a wide temperature range – from cryogenic to approximately 1800˚F (980˚C).

The combination of high chromium and molybdenum provides excellent elevated temperature properties and outstanding aqueous corrosion resistance in a wide range of environments. Molybdenum also makes EC625 virtually immune to pitting and crevice attack in seawater and similar chloride environments.

The high nickel content of EC625 provides immunity to chloride stress corrosion cracking.

EC625 is resistant to a number of corrosive environments, including seawater, phosphoric acid, organic acids, mixtures of oxidizing and reducing acids, caustic solutions and other aggressive chemicals encountered in pollution control environments.

APPLICATIONS:

EC625 is utilized in both high temperature and corrosive applications in chemical processing, pulp and paper, air pollution control, ore processing, waste treatment and disposal, steel pickling, marine equipment, nuclear reactor components, aerospace and gas turbines.

Chemical Processing Equipment – phosphoric acid, nitric-sulfuric and nitric-hydrofluoric acids, hydrofluoric and fluosilicic acid mixtures, sulfuric acid, calcium chloride and magnesium chloride, pesticides, and styrene.

Pulp and Paper – head boxes.

Air Pollution Control – power plant scrubbers, electrostatic precipitators, waste-heat recovery systems, smelting scrubbers, and scrubbers for industrial boilers and inert-gas generators.

Ore Processing – uranium processing, copper refining, aluminum-sulfate production.

Waste Treatment and Disposal – municipal refuse incinerators, sewage sludge incinerators, chemical and toxic waste incinerators.

Steel Pickling – hydrochloric acid.

Marine Equipment – scrubbers for inert-gas generators, submerged equipment.

Nuclear Reactors – components for fission and fusion reactors.

Aerospace and Gas Turbines – jet engine components, turbine blades.

CHEMICAL COMPOSITION (NOMINAL ANALYSIS, PERCENT)

Carbon, max.	0.10
Manganese, max.	0.50
Silicon, max.	0.50
Sulfur, max.	0.015
Phosphorus, max.	0.015
Chromium	20.00 min. – 23.00 max.
Columbium plus Tantalum	3.15 min. – 4.15 max.
Cobalt, max.	1.00
Molybdenum	8.00 min. – 10.00 max.
Iron, max	5.00
Aluminum, max.	0.40
Titanium, max.	0.40
Nickel *	58.00 min.

* Element shall be determined arithmetically by difference.

AVAILABLE PRODUCTS*

Plate	1/4" and thicker. Widths to 102", lengths to 400" *For larger dimensions – inquire.*
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

Tensile Strength, min.	120 ksi (827 MPa)
Yield Strength (0.2% offset), min.	60 ksi (414 MPa)
Elongation in 2 in. (50.8 mm), or 4D, %, min.	30
Density, grams per cu. cm.	8.44
lb. per cu. in.	0.305
Magnetic Permeability (75˚F, 200 Oersted)	1.0006
Melting Range, ˚F	2350-2460
Specific Heat, BTU per lb. per ˚F	0.098

SPECIFICATIONS

ASME SB443
ASTM B443
AMS 5599

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.

G. O. Carlson
Plate Products

Unsurpassed experience with specialty metals

350 Marshallton-Thorndale Road • Downingtown, PA 19335-2063
Telephone (610) 384-2800 • Fax (610) 383-3429

 Printed in U.S.A. 04/2016