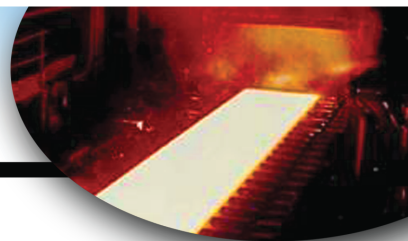




# G.O. Carlson Plate



## CARLSON ALLOYS EC600 (UNS N06600) EC600ESR PRODUCT DATA BULLETIN

Excellent mechanical properties from sub-zero to elevated temperatures. Excellent resistance to oxidation at high temperatures. High strength is combined with good workability. Widely used in many industries for severe service.

### GENERAL PROPERTIES AND TYPICAL APPLICATIONS

Carlson Alloy EC600 is a nickel-chromium-iron alloy, developed for use in severely corrosive environments at elevated temperatures. The high nickel content of this alloy provides excellent resistance to chloride-ion stress corrosion cracking and imparts resistance to corrosion by a number of organic and inorganic compounds. Chromium gives this alloy its resistance to oxidation at temperatures up to 2150°F (1175°C).

EC600 combines high strength with desirable workability. It has excellent mechanical properties from sub-zero to elevated temperatures.

EC600ESR is an electro-slag remelt version of EC600. It is utilized for numerous nuclear reactor applications.

#### APPLICATIONS:

Chemical Processing – calcium and magnesium chloride production, hydrofluoric acid processes, catalyst support equipment

in nitric acid production, ammonia converters, tubing, bends and flanges in vinylchloride production, fluorination reactors, fatty acid vessels, and chlorination equipment.

Pulp and Paper – liquid heater tubing for pulp digesters, reactors and piping for disposal of organic wastes, sulfate and soda digester linings.

Ore Processing – chlorine preheaters for zirconium and titanium production, cans for purification of zirconium salts, titanium dioxide production, reactors for manufacturing aluminum fluoride.

Food Processing – vegetable processing equipment.

Thermal Processing – equipment for heat treating muffles, retorts, baskets and boxes, furnace fixtures and radiant tubing.

Power Generation – nuclear reactor components and steam-turbine crossover bellows.

### CHEMICAL COMPOSITION (NOMINAL ANALYSIS, PERCENT)

Carbon, max. ....	0.15	Copper, max. ....	0.50
Manganese, max. ....	1.00	Iron ....	6.00 min. – 10.00 max.
Silicon, max. ....	0.50	Chromium ....	14.00 min. – 17.00 max.
Sulfur, max. ....	0.015	Nickel (plus Cobalt), min. ....	72.00
Phosphorus ....	0.030	Titanium, max. ....	0.50
Cobalt, max. ....	1.00	Tantalum, max. ....	0.05
Aluminum, max. ....	0.35	Columbium (Niobium), max. ....	1.00

**AVAILABLE PRODUCTS\***

<b>Plate</b>	3/16" through 4" Widths to 108", lengths to 480" <i>For larger dimensions – inquire.</i>
<b>Plate Products</b>	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**

<b>Tensile Strength, psi, min.</b>	80,000 (552 MPa)
<b>Yield Strength (0.2% offset), psi, min.</b>	35,000 (241 MPa)
<b>Elongation in 2 in. (50.8 mm), or 4D, %, min.</b>	30
<b>Density, grams per cu. cm.</b>	8.42
<b>lb. per cu. in.</b>	0.304
<b>Magnetic Permeability (70°F, 200 Oersted)</b>	1.010
<b>Melting Range, °F</b>	2470-2575
<b>Curie Temperature, °F (annealed)</b>	-192

**SPECIFICATIONS**

**ASME SB168  
ASTM B168  
ASM 5540  
MIL-N-23228 (EC600ESR)**

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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