

## Elgiloy® Co-Cr-Ni Alloy, Strip

Categories: [Metal](#); [Nonferrous Metal](#); [Cobalt Alloy](#); [Superalloy](#)

**Material Notes:** General Elgiloy® information: High strength, ductility, fatigue life, and good mechanical properties. Corrosion resistant in numerous environments. Available in strip (currently 0.0015" to 0.075" thickness and 0.023" to 9.00 " width), round wire (0.006" to 0.625" diameter), sheet, cable, ribbon, bar, rod, and some fabricated parts.

**General Forming Notes:** Forming should be done prior to heat treatment since heat treatment strengthens the material and makes it more difficult to form. Bending of strip should take place perpendicular to the rolling direction so that it will be across the elongated grain structure rather than parallel to it. In bending strip, a 90° bend should be at least 8 times the material thickness; in a 360° bend, a diameter of 18 to 25 times the material thickness is usually acceptable. Wire should not be formed beyond a mean diameter of 4 times the wire size.

**General Joining Notes:** Mechanical joining methods are best. Excellent spot welding results have been obtained. When soldering or brazings, a very active flux should be employed and be allowed to remain on the material for a minute or two. When brazing, caution should be exercised to keep temperatures below 593-760°C. Because of this, furnace brazing should be employed whenever possible.

**Key Words:** AMS 5833; AMS 5834; ASTM F-1058; AMS 5875; AMS 5876; NACE MR0175; UNS R30003; NOL-WS 13822; Phynox

**Vendors:** [Click here to view all available suppliers for this material.](#)

Please [click here](#) if you are a supplier and would like information on how to add your listing to this material.

Physical Properties	Metric	English	Comments
Density	8.30 g/cc	0.300 lb/in <sup>3</sup>	
Mechanical Properties	Metric	English	Comments
Hardness, Brinell	192	192	Estimated from Rockwell C
Hardness, Knoop	223	223	Estimated from Rockwell C
Hardness, Rockwell A	56	56	Estimated from Rockwell C
Hardness, Rockwell B	91	91	Estimated from Rockwell C
Hardness, Rockwell C	11	11	
Hardness, Vickers	196	196	Estimated from Rockwell C
Tensile Strength, Ultimate	860 MPa	125000 psi	
Tensile Strength, Yield	520 MPa	75400 psi	
Elongation at Break	38 %	38 %	
Modulus of Elasticity	189.6 GPa	27500 ksi	
Poissons Ratio	0.226	0.226	
Shear Modulus	77.4 GPa	11200 ksi	
Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000996 ohm-cm	0.0000996 ohm-cm	
Magnetic Permeability	1.0004	1.0004	For all practical purposes, Elgiloy® is nonmagnetic through all temperature ranges.
Thermal Properties	Metric	English	Comments
CTE, linear	15.17 µm/m-°C @Temperature 0.000 - 500 °C	8.428 µin/in-°F @Temperature 32.0 - 932 °F	
Specific Heat Capacity	0.430 J/g-°C	0.103 BTU/lb-°F	
Thermal Conductivity	12.5 W/m-K	86.8 BTU-in/hr-ft <sup>2</sup> -°F	
Melting Point	1427 °C	2601 °F	
Component Elements Properties	Metric	English	Comments
Beryllium, Be	<= 0.10 %	<= 0.10 %	
Carbon, C	<= 0.15 %	<= 0.15 %	
Chromium, Cr	19 - 21 %	19 - 21 %	
Cobalt, Co	39 - 41 %	39 - 41 %	
Iron, Fe	11.3 - 20.5 %	11.3 - 20.5 %	As remainder
Manganese, Mn	1.5 - 2.5 %	1.5 - 2.5 %	
Molybdenum, Mo	6.0 - 8.0 %	6.0 - 8.0 %	
Nickel, Ni	14 - 16 %	14 - 16 %	

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistent format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error. We also ask that you refer to MatWeb's [terms of use](#) regarding this information. [Click here](#) to view all the property values for this datasheet as they were originally entered into MatWeb.