

Greek Ascaloy 418 stainless bar is a higher strength modification of the 12% chromium family of martensitic stainless steels. It's a precipitation, age hardenable stainless steel that features transverse toughness. It can be machined in all conditions. Greek Ascaloy retains corrosion and oxidation resistance and has usable strength and creep resistance to 1050°F (566°C). This grade is used for jet engine compressor blades and vanes due to resistance to stress corrosion cracking. Also used for discs in lower temperature turbine stages and for turbine diffuser components.

Nominal Composition %

Fe	Iron – 81.00%
Cr	Chromium – 13.00%
W	Tungsten – 3.00%
Ni	Nickel – 2%
C	Carbon – 1.00%

Percent by weight, maximum unless a range is listed.

Standard Inventory Specifications

- AMS 5616
- UNS S41800

Forms Stocked

- Greek Ascaloy Bar Stock

Thickness Stocked

- 0.250" – 6.000" thick

Applications

- Steam turbine buckets and blades
- Gas turbine compressor parts
- High temperature bolts
- Jet engine compressor blades and vanes
- Turbine diffuser components
- Aircraft landing gear
- petrochemical components



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Industries

- Aerospace
- Defense
- Fasteners
- Space

Physical Properties

The corrosion resistance of Greek Ascoloy 418 stainless bar is similar to Alloy 410 stainless bar. This grade resists oxidation up to 1400°F (760°C) and may be used in continuous service at 1100°F (593°C). A wide range of mechanical properties can be obtained by hardening and tempering this alloy.

Property	Value - Metric	Value - Imperial
Density	7.86 g/cm ³	0.284 lb/in ³

Mechanical Properties

Property	Value
Hardness	Hardness of stock is typically 250 BHN. Supplied in the fully annealed condition. Hardening of this grade is accomplished by austenitizing at 1750-1800°F (954-982°C) followed by air or oil quench to form martensite. Immediately following austenitizing, tempering should be carried out in the range of 1000-1250°F (538-677°C) for two hours. The hot working range is 1700-2150°F (927-1177°C). Large sections should be preheated at 1200-1400° (649-760°C) to prevent strain cracking.
Machinability	Rating: 55% OF B-1112. Typical stock removal rate: 90 surface feet/minute with high speed tools, 150 surface feet/minute with carbide. Best machinability is in the fully annealed condition. Greek Ascoloy 418 stainless bar has a low work hardening rate and is not "gummy" like austenitic stainless steels during machining.