

## **Stainless Steel 321 Fact Sheet**

Do you need custom fasteners created with Stainless Steel 321? Since our inception, Elgin Fastener Group has met every challenge of providing Quality, Timely, Cost-effective solutions for specialty fastener applications. Every product is built to your specifications, using your prints if necessary.

Below are the technical specifications of the Stainless Steel 321 Bar Stock we have available to meet your needs.

## **AK Steel Austenitic Stainless Steel 321**

Subcategory: Metal; Stainless Steel; T 300 Series Stainless Steel; Austenitic

Close Analogs: Iron content calculated as remainder

Component	Wt. %
С	Max 0.08
Cr	17 - 19
Fe	65.295 - 74
Mn	Max 2
Ν	Max 0.1
Ni	9 - 12
Р	Max 0.045
S	Max 0.03
Si	Max 0.75
Ti	Max 0.7

## Material Notes:

AK Steel 321 is a stabilized austenitic stainless steel similar to Type 304 but with a titanium addition. This titanium addition reduces or prevents carbide precipitation during welding and in 427 - 816°C service. It also improves the elevated temperature properties of the alloy. AK Steel 321 provides excellent resistance to oxidation and corrosion and possesses good creep strength. It is used primarily in applications involving continuous and intermittent service temperatures within the carbide precipitation range of 427 - 816°C.

Information provided by AK Steel

Physical Properties	Metric	English	Comments
Density	9.01 g/cc	0.326 lb/in <sup>3</sup>	

Mechanical Properties			
Hardness, Rockwell B	80	80	
Tensile Strength, Ultimate	621 MPa	90100 psi	
Tensile Strength, Yield	276 MPa	40000 psi	0.2% YS
Elongation at Break	45 %	45 %	in 2 inches
Modulus of Elasticity	193 GPa	28000 ksi	tension
Modulus of Elasticity	78 GPa	11300 ksi	torsion
Electrical Properties			
Electrical Resistivity	7.2e-005 ohm-cm	7.2e-005 ohm-cm	
Magnetic Permeability	Max 1.02	Max 1.02	H = 200 Oersteds, Annealed
Thermal Properties			
CTE, linear 20°C	16.6 µm/m-°C	9.22 µin∕in-°F	0 to 100°C
CTE, linear 20°C	20.2 µm/m-°C	11.2 µin/in-°F	to 871°C
Heat Capacity	0.5 J/g-°C	0.12 BTU/lb-°F	0°C to 100°C
Thermal Conductivity	16 W/m-K	111 BTU-in/hr-ft <sup>2</sup> -°F	100°C
Thermal Conductivity	22 W/m-K	153 BTU-in/hr-ft²-°F	500°C
Processing Properties			
Melt Temperature	1371 - 1399 °C	2500 - 2550 °F	