AISI Type 321 Stainless Steel, annealed and cold drawn bar, 25 mm diam.

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

Component	Wt. %	Component	Wt. %	Component	Wt. %
C	0.08	Mn	2	S	0.03
Cr	17	Ni	11	Si	1
Fe	69	P	0.045	Ti	0.15

Material Notes:

Similar to Type 304 except Ti content helps prevent chromium carbide precipitation resulting from welding or elevated temperatures. Stabilized at annealing temperatures between 950-1010°C (1750-1850°F). Resists scaling and vibration fatigue. Applications include aircraft exhaust stacks and manifolds, chemical processing equipment, weld equipment, jet engine parts.

Physical Properties	Metric	English	Comments
Density	8 g/cc	0.289 lb/in³	
Mechanical Properties			
Hardness, Brinell	185	185	
Hardness, Knoop	207	207	Converted from Brinell hardness.
Hardness, Rockwell B	90	90	
Hardness, Vickers	194	194	Converted from Brinell hardness.
Tensile Strength, Ultimate	655 MPa	95000 psi	
Tensile Strength, Yield	415 MPa	60200 psi	
Elongation at Break	40 %	40 %	in 50 mm
Modulus of Elasticity	193 - 200 GPa	28000 - 29000 ksi	
Charpy Impact	165 J	122 ft-lb	V-notch
Izod Impact	135 J	99.6 ft-lb	
Electrical Properties			
Electrical Resistivity	7.2e-005 ohm-cm	7.2e-005 ohm-cm	at 20ºC

Thermal Properties

CTE, linear 20°C	16.7 µm/m-°C	9.28 µin/in-°F	0 - 100ºC
CTE, linear 250°C	17.1 µm/m-°C	9.5 µin/in-°F	at 0-315°C (32-600°F)
CTE, linear 500°C	18.5 µm/m-°C	10.3 µin/in-°F	0 - 540ºC
CTE, linear 1000°C	20.5 µm/m-°C	11.4 µin/in-°F	20 - 925ºC
Specific Heat Capacity	0.5 J/g-°C	0.12 BTU/lb-°F	from 0-100°C (32-212°F)
Thermal Conductivity at Elevated Temperature	16.1 W/m-K	112 BTU-in/hr-ft²-°F	100ºC
Melting Point	1400 - 1425 °C	2550 - 2600 °F	
Solidus	1400 °C	2550 °F	
Liquidus	1425 °C	2600 °F	
Maximum Service Temperature, Air	870 °C	1600 °F	Intermittent Service
Maximum Service Temperature, Air	925 °C	1700 °F	Continuous Service

References for this datasheet.

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 consistant 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.