AISI Type 303 Stainless Steel, annealed bar, tested at RT

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

Close Analogs: AISI Type 303 Se

Key Words: T303, T 303, 303SS, 303 SS, AFNOR Z 10 CNF 18.09 (Fr), UNI X 10 CrNiS 18 09, SUS 303, SS14 2346 (Sweden), B.S. 303 S 21, UNS S30300, AMS 5640 (1), ASME SA194, ASME SA320, ASTM A194, ASTM A314, ASTM A320, ASTM A320, ASTM A473, ASTM A581, ASTM A582, MIL SPEC MIL-S-862, SAE J405 (30303), DIN 1.4305, X12CrNiS188, EN 58M, austenitic, ISO 683/13 17, 18-8

Component	Wt. %	Component	Wt. %	Component	Wt. %
C	Max 0.15	Mn	Max 2	P	Max 0.2
Cr	18	Mo	Max 0.6	S	Min 0.15
Fe	69	Ni	9	Si	Max 1

Physical Properties	Metric	English	Comments
Density	8 g/cc	0.289 lb/in³	

Mechanical Properties

Hardness, Brinell	160	160	
Hardness, Knoop	180	180	Converted from Brinell hardness.
Hardness, Rockwell B	83	83	Converted from Brinell hardness.
Hardness, Vickers	167	167	Converted from Brinell hardness.
Tensile Strength, Ultimate	620 MPa	89900 psi	
Tensile Strength, Yield	240 MPa	34800 psi	at 0.2% offset
Elongation at Break	50 %	50 %	in 50 mm
Modulus of Elasticity	193 GPa	28000 ksi	tension
Poisson's Ratio	0.25	0.25	Calculated
Fatigue Strength	240 MPa	34800 psi	annealed
Fatigue Strength	330 MPa	47900 psi	25% hardened
Shear Modulus	77.2 GPa	11200 ksi	

Electrical Properties

Electrical Resistivity	7.2e-005 ohm-cm	7.2e-005 ohm-cm	
Magnetic Permeability	1.008	1.008	at RT

Thermal Properties

CTE, linear 20°C	17.2 µm/m-°C	9.56 µin/in-°F	from from 0-100°C
CTE, linear 250°C	17.8 µm/m-°C	9.89 µin/in-°F	at 0-315°C (32-600°F)
CTE, linear 500°C	18.4 µm/m-°C	10.2 µin/in-°F	at 0-540°C, 18.7 µm/m-C at 0-650°C
Specific Heat Capacity	0.5 J/g-°C	0.12 BTU/lb-°F	from 0-100°C (32-212°F)
Thermal Conductivity	16.2 W/m-K	112 BTU-in/hr-ft²-°F	at 100°C (212°F), 21.5 W/m-K at 500°C (930°F)
Melting Point	1400 - 1420 °C	2550 - 2590 °F	
Solidus	1400 °C	2550 °F	
Liquidus	1420 °C	2590 °F	

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.