MW Components

Stainless Steel 303 Fact Sheet

Do you need custom fasteners created with 303 Stainless Steel? Since our inception, Elgin Fastener Group has met every challenge of providing quality, timely, cost-effective solutions for specialty stainless steel fastener applications. Every product is built to your specifications, using your prints if necessary.

Below are the material properties and technical specifications of 303 Stainless Steel Bar Stock we have available to meet your needs.

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

Subcategory: 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. %
C	Max 0.15
Cr	18
Fe	69
Mn	Max 2
Mo	Max 0.6
Ni	9
P	Max 0.2
S	Min 0.15
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 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
Heat Capacity	0.5 J/g-°C	0.12 BTU/lb-°F	from 0-100°C (32-212°F)
Thermal Conductivity	16.2 /m-K	112 BTU-in/hr-ft²-°F	at 100°C (212°F), 21.5 /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	