



ASM Aerospace Specification Metals Inc.



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AISI Type 303 Se Stainless Steel, annealed, tested at 21°C (70°F)

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

Close Analogs: AISI Type 303

Key Words: T303, T 303, 303Se, 303SS, 303 SS, UNS S30323, AMS 5640 (type 2), AMS 5641, AMS 5738, ASME SA194, ASME SA320, ASTM A194, ASTM A194 (8F), ASTM A314, ASTM A320, ASTM A473, ASTM A581, ASTM A582, MIL SPEC MIL-S-862, SAE J405 (30303 Se), DIN 1.4305, X12CrNiS188, B.S. 303 S 41, EN 58M, austenitic, 18-8

Component	Wt. %	Component	Wt. %	Component	Wt. %
C	Max 0.15	Mn	Max 2	S	Max 0.06
Cr	18	Ni	9	Se	Max 0.15
Fe	69	P	Max 0.2	Si	Max 1

Material Notes:

Short time tensile test

Physical Properties	Metric	English	Comments
Density	<u>8 g/cc</u>	0.289 lb/in ³	

Mechanical Properties

Tensile Strength, Ultimate	<u>620 MPa</u>	89900 psi	
Tensile Strength, Yield	<u>240 MPa</u>	34800 psi	at 0.2% offset
Elongation at Break	<u>50 %</u>	50 %	in 50 mm
Modulus of Elasticity	<u>193 GPa</u>	28000 ksi	tension
Poisson's Ratio	0.25	0.25	Calculated
Shear Modulus	<u>77.2 GPa</u>	11200 ksi	

Electrical Properties

Electrical Resistivity	<u>7.2e-005 ohm-cm</u>	7.2e-005 ohm-cm
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Magnetic Permeability	1.008	1.008	at RT
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Thermal Properties

CTE, linear 20°C	17.2 $\mu\text{m}/\text{m}\cdot\text{°C}$	9.56 $\mu\text{in}/\text{in}\cdot\text{°F}$	from from 0-100°C
CTE, linear 250°C	17.8 $\mu\text{m}/\text{m}\cdot\text{°C}$	9.89 $\mu\text{in}/\text{in}\cdot\text{°F}$	at 0-315°C (32-600°F)
CTE, linear 500°C	18.4 $\mu\text{m}/\text{m}\cdot\text{°C}$	10.2 $\mu\text{in}/\text{in}\cdot\text{°F}$	at 0-540°C, 18.7 $\mu\text{m}/\text{m}\cdot\text{C}$ at 0-650°C
Specific Heat Capacity	0.5 $\text{J}/\text{g}\cdot\text{°C}$	0.12 $\text{BTU}/\text{lb}\cdot\text{°F}$	from 0-100°C (32-212°F)
Thermal Conductivity	16.2 $\text{W}/\text{m}\cdot\text{K}$	112 $\text{BTU}\cdot\text{in}/\text{hr}\cdot\text{ft}^2\cdot\text{°F}$	at 100°C (212°F), 21.5 $\text{W}/\text{m}\cdot\text{K}$ 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 consistent 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.