



ASM Aerospace Specification Metals Inc.



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AISI Type 302 Stainless Steel, tested at 21°C (70°F)

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

Close Analogs: AISI Type 302B

Key Words: T302, T 302, 302SS, 302 SS, UNS S30200, AMS 5515, AMS 5516, AMS 5636, AMS 5637, AMS 5688, ASME SA 240, ASME SA 479, ASTM A167, ASTM A240, ASTM A276, ASTM A313, ASTM A314, ASTM A368, ASTM A473, ASTM A478, ASTM A479, ASTM A492, ASTM A493, ASTM A511, ASTM A554, ASTM A666, FED QQ-S-763, FED QQ-S-766, FED QQ-W-423, MIL SPEC MIL-S-862, SAE J230, SAE J405 (30302), DIN 1.4300, X12CrNi188, B.S. 309S25, EN 58A, PN 86020 (Poland), 1H18N9, austenitic, ISO 4954 X10CrNi189E, ISO 683/13 12, ISO 6931 X9CrNi188, 18-8

Component	Wt. %
C	Max 0.15
Cr	18
Fe	70
Mn	Max 2
Ni	9
P	Max 0.045
S	Max 0.03
Si	Max 1

Material Notes:

Austenitic Cr-Ni stainless steel. More corrosion resistant than Type 301 and because of higher Ni content does not work harden as quickly as Type 301. Essentially non-magnetic in annealed condition, slightly magnetic in cold worked condition. Can be stamped, blanked, formed, and lightly drawn. Applications include car and radar antennas, automobile trim, bottling machinery, dairy processing equipment, food processing equipment, home appliances, hospital equipment, industrial floor plate, jewelry, kitchen and restaurant equipment, spring clips, washers, retainers.

Physical Properties	Metric	English	Comments
Density	<u>7.86 g/cc</u>	0.284 lb/in ³	

Mechanical Properties

Tensile Strength, Ultimate	<u>585 MPa</u>	84800 psi
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Tensile Strength, Yield	<u>255 MPa</u>	37000 psi	at 0.2% offset
Elongation at Break	<u>57 %</u>	57 %	in 50 mm
Modulus of Elasticity	<u>193 GPa</u>	28000 ksi	
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	at 20°C, 0.000078 Ohm-cm at 100°C, 0.000086 Ohm-cm at 200°C, 0.0001 Ohm-cm at 400°C
Magnetic Permeability	1.008	1.008	at RT

Thermal Properties

CTE, linear 20°C	<u>17.2 µm/m-°C</u>	9.56 µin/in-°F	from from 0-100°C
CTE, linear 250°C	<u>17.8 µm/m-°C</u>	9.89 µin/in-°F	at 0-315°C (32-600°F)
CTE, linear 500°C	<u>18.4 µm/m-°C</u>	10.2 µin/in-°F	at 0-540°C, 18.7 µm/m-C at 0-650°C
Specific Heat Capacity	<u>0.5 J/g-°C</u>	0.12 BTU/lb-°F	from 0-100°C (32-212°F)
Thermal Conductivity	<u>16.2 W/m-K</u>	112 BTU-in/hr-ft ² -°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	<u>1400 °C</u>	2550 °F	
Liquidus	<u>1420 °C</u>	2590 °F	
Maximum Service Temperature, Air	<u>870 °C</u>	1600 °F	Intermittent Service
Maximum Service Temperature, Air	<u>925 °C</u>	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 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.