

301 Stainless Steel

Categories: [Metal](#); [Ferrous Metal](#); [Stainless Steel](#); [T 300 Series Stainless Steel](#)

Material Notes: Type 301 is a high strength grade of steel. Its resistance to atmosphere corrosion and its bright, attractive surface make it an excellent choice for decorative structural applications.

Applications include automobile molding and trim, wheel cover, conveyor belts, kitchen equipment, roof draining systems, hose clamps, springs, truck and trailer bodies, railway and subway cars. By varying the chemical composition within the limits set by the ASTM Specifications and by temper rolling, a broad range of magnetic and mechanical properties can be obtained for a variety of applications.

Information provided by Allegheny Ludlum Corporation, Eagle Brass, and the reference(s).


Key Words: UNS S30100; EN 10088/2(95) 1.4310

Vendors: No vendors are listed for this material. Please [click here](#) if you are a supplier and would like information on how to add your listing to this material.

Physical Properties	Metric	English	Comments
Density	8.03 g/cc	0.290 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	217	217	
Tensile Strength, Ultimate	515 MPa	74700 psi	
Tensile Strength, Yield	205 MPa	29700 psi	
Elongation at Break	40 %	40 %	
Modulus of Elasticity	212 GPa	30700 ksi	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000720 ohm-cm	0.0000720 ohm-cm	
Magnetic Permeability	<= 1.02	<= 1.02	H = 200 Oersted, Annealed

Thermal Properties	Metric	English	Comments
CTE, linear 	16.6 µm/m-°C	9.22 µin/in-°F	
	@Temperature 20.0 - 100 °C	@Temperature 68.0 - 212 °F	
	17.6 µm/m-°C	9.78 µin/in-°F	
	@Temperature 20.0 - 300 °C	@Temperature 68.0 - 572 °F	
	18.6 µm/m-°C	10.3 µin/in-°F	
	@Temperature 20.0 - 500 °C	@Temperature 68.0 - 932 °F	
	19.5 µm/m-°C	10.8 µin/in-°F	
	@Temperature 20.0 - 700 °C	@Temperature 68.0 - 1290 °F	
Specific Heat Capacity	0.500 J/g-°C	0.120 BTU/lb-°F	
	@Temperature 0.000 - 100 °C	@Temperature 32.0 - 212 °F	
Thermal Conductivity	16.3 W/m-K	113 BTU-in/hr-ft ² -°F	
Melting Point	1399 - 1421 °C	2550 - 2590 °F	
Solidus	1399 °C	2550 °F	
Liquidus	1421 °C	2590 °F	

Component Elements Properties	Metric	English	Comments
Carbon, C	<= 0.15 %	<= 0.15 %	
Chromium, Cr	16 - 18 %	16 - 18 %	
Iron, Fe	70.7 - 78 %	70.7 - 78 %	As Balance
Manganese, Mn	<= 2.0 %	<= 2.0 %	
Nickel, Ni	6.0 - 8.0 %	6.0 - 8.0 %	
Nitrogen, N	<= 0.10 %	<= 0.10 %	

Phosphorus, P	<= 0.045 %	<= 0.045 %
Silicon, Si	<= 1.0 %	<= 1.0 %
Sulfur, S	<= 0.030 %	<= 0.030 %

[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. We also ask that you refer to MatWeb's [terms of use](#) regarding this information. [Click here](#) to view all the property values for this datasheet as they were originally entered into MatWeb.