AISI Type 304L Stainless Steel

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

Key Words: aisi304, aisi 304, T304, T 304, SUS304, SS304, 304SS, 304 SS, T304L, T304 L, 304L, 304 L, UNS S30403, AMS 5647, QQ-S-763, austenitic, Cr-Ni stainless steel, SAE 30304L, DIN 1.4306, X2CrNi189, B.S. 304 S 12, PN 86020 (Poland), OOH18N10, ISO 4954 X2CrNi1810E, ISO 683/13 10, 18-8

Component	Wt. %
C	Max 0.03
Cr	18 - 20
Mn	Max 2
Ni	8 - 12
P	Max 0.045
S	Max 0.03
Si	Max 1

Material Notes:

Austenitic Cr-Ni stainless steel. Better corrosion resistance than Type 302. High ductility, excellent drawing, forming, and spinning properties. Essentially non-magnetic, becomes slightly magnetic when cold worked. Low carbon content means less carbide precipitation in the heat-affected zone during welding and a lower susceptibility to intergranular corrosion. Applications include beer barrels, bellows, chemical equipment, coal hopper linings, cooling coils, cryogenic vessels, dairy equipment, evaporators, feedwater tubing, flexible metal hose, food processing equipment, hypodermic needles, nuclear vessels, oil well filter screens, refrigeration equipment, paper industry, pressure vessels, sanitary fittings, valves, shipping drums, spinning, still tubes, textile dyeing equipment, tubing.

Physical Properties	Metric	English	Comments
Density	8 g/cc	0.289 lb/in³	
Mechanical Properties			
Hardness, Knoop	158	158	Converted from Rockwell B Hardness Value
Hardness, Rockwell B	82	82	
Hardness, Rockwell C	15	15	10% Cold-worked

Hardness, Vickers	159	159	Converted from Rockwell B Hardness Value.
Tensile Strength, Ultimate	564 MPa	81800 psi	0% Cold-worked
Tensile Strength, Yield	210 MPa	30500 psi	0% Cold-worked
Elongation at Break	58 %	58 %	In 50mm (2 in.)
Modulus of Elasticity	193 - 200 GPa	28000 - 29000 ksi	
Charpy Impact	216 J	159 ft-lb	

Electrical Properties

Magnetic Permeability	1.008	1.008	at RT

Thermal Properties

Specific Heat Capacity	0.5 J/g-°C	0.12 BTU/lb-°F	Estimated based on a comparison with similar stainless steels.
Melting Point	1400 - 1450 °C	2550 - 2640 °F	
Solidus	1400 °C	2550 °F	
Liquidus	1450 °C	2640 °F	
Maximum Service Temperature, Air	870 °C	1600 °F	Intermittent Service
Maximum Service Temperature, Air	925 °C	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 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.