MW Components

Stainless Steel 304B Fact Sheet

Do you need custom fasteners created with Stainless Steel 304B? Since our inception, Elgin Fastener Group has met every challenge of providing Quality, Timely, Cost-effective solutions for specialty fastener applications. Every product is built to your specifications, using your prints if necessary.

Below are the technical specifications of the Stainless Steel 304B Bar Stock we have available to meet your needs.

Industeel NUCL 18.10 B4 Natural Boron (Min 1% wt) Alloyed 304 Stainless Steel

Subcategory: Metal; Stainless Steel; T 300 Series Stainless Steel

Key Words: aisi304, aisi 304, DIN W.14306 Bor-01 Ind.00, ASTM A887 UNS S30464 : Type 304B4, SUS304, SS304

Component	Wt. %
B	1.1
C	0.013
Cr	18.5
Fe	66.687 - 66.787
Mn	0.8
N	Max 0.1
Ni	12.5
Si	0.3

Material Notes:
Description: Isotope B_{10} has the property to capture neutrons produced by nuclear reactions. Natural boron contains about 19.9 at% or 18.45 wt % of B_{10} isotope, the remaining being B_{11} isotope. NUCL 18.10 B4 grade is a 304 stainless steel obtained by ingot casting and alloyed with 1 to 1,24 wt% natural boron additions. In order to avoid ferrite grain which reduce the ductility of the alloy, NUCL 18.10 B4 grade has been overalloyed in Nickel when compared to 304 grades. Molybdenum additions are sometimes considered to increase the corrosion resistance properties. The ingots rolled into plates are considered for nuclear applications (transport, casks, storage -in pools) of nuclear (waste) products. For specific purposes, some other grades are sometimes used. The boron content may thus be included in the 0.2-2 weight % range or/and alloys obtained by powder metallurgy (A type). CLI-FAFER can also produce 18-10 A or B type boron alloyed grades (included B10 enriched grades). Among the family of boron enriched 304 grades, NUCL 18-10 B4 grade is the most commonly used.

Iron content calculated as remainder.

Information provided by manufacturer.

Physical Properties	Metric	English	Comments
Density	7.8 g/cc	0.282 lb/in³	
Mechanical Properties			
Hardness, Brinell	Max 217	Max 217	Typical
Hardness, Rockwell B	Max 95	Max 95	Typical
Tensile Strength, Ultimate	Min 515 MPa	Min 74700 psi	Minimum Guaranteed
Tensile Strength, Ultimate	610 MPa	88500 psi	Typical
Tensile Strength, Yield	Min 225 MPa	Min 32600 psi	Y.S. 1%
Tensile Strength, Yield	Min 210 MPa	Min 30500 psi	Y.S. 0.2%
Tensile Strength, Yield	310 MPa	45000 psi	Typical (Y.S. 0.2%)
Tensile Strength, Yield	325 MPa	47100 psi	Typical (Y.S. 1%)
Elongation at Yield	Min 16 %	Min 16 %	
Elongation at Yield	19 %	19 %	Typical
Modulus of Elasticity	200 GPa	29000 ksi	20°C
Poisson€™s Ratio	0.333	0.333	Calculated
Shear Modulus	75 GPa	10900 ksi	20°C
Electrical Properties			
Electrical Resistivity	9.5e-005 ohm-cm	9.5e-005 ohm-cm	20°C
Thermal Properties			
CTE, linear 20°C	17 µm/m-°C	9.44 µin/in-°F	20-100°C
CTE, linear 100°C	17.5 µm/m-°C	9.72 µin/in-°F	20-200°C
CTE, linear 250°C	18 µm/m-°C	10 µin/in-°F	20-300°C
Heat Capacity	0.5 J/g-°C	0.12 BTU/lb-°F	20°C
Thermal Conductivity	15 W/m-K	104 BTU-in/hr-ft²-°F	20°C

References are available for this material.