

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

Category : Metal , Ferrous Metal , Stainless Steel , T 300 Series Stainless Steel

Material Notes:

Description: Isotope B10 has the property to capture neutrons produced by nuclear reactions. Natural boron contains about 19.9 at% or 18.45 wt % of B10 isotope, the remaining being B11 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. Information provided by manufacturer.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Industeel-NUCL-1810-B4-Natural-Boron-Min-1-wt-Alloyed-304-Stainless-Steel.php

Physical Properties	Metric	English	Comments
Density	7.80 g/cc	0.282 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	<= 217	<= 217	Typical
Hardness, Rockwell B	<= 95	<= 95	Typical
Tensile Strength, Ultimate	>= 515 MPa	>= 74700 psi	Minimum Guaranteed
	610 MPa	88500 psi	Typical
Tensile Strength, Yield	>= 210 MPa	>= 30500 psi	
	@Strain 0.200 %	@Strain 0.200 %	
	>= 225 MPa	>= 32600 psi	
	@Strain 1.00 %	@Strain 1.00 %	
	310 MPa	45000 psi	Typical
	@Strain 0.200 %	@Strain 0.200 %	
	325 MPa	47100 psi	Typical
	@Strain 1.00 %	@Strain 1.00 %	
Elongation at Break	>= 16 %	>= 16 %	
	19 %	19 %	Typical

Modulus of Elasticity Mechanical Properties	200 GPa Metric	29000 ksi English	Comments
Poissons Ratio	0.333	0.333	Calculated
Shear Modulus	75.0 GPa @Temperature 20.0 Â°C	10900 ksi @Temperature 68.0 Â°F	

Thermal Properties	Metric	English	Comments
CTE, linear	17.0 Âµm/m-Â°C	9.44 Âµin/in-Â°F	
	@Temperature 20.0 - 100 Â°C	@Temperature 68.0 - 212 Â°F	
	17.5 Âµm/m-Â°C	9.72 Âµin/in-Â°F	
	@Temperature 20.0 - 200 Â°C	@Temperature 68.0 - 392 Â°F	
	18.0 Âµm/m-Â°C	10.0 Âµin/in-Â°F	
	@Temperature 20.0 - 300 Â°C	@Temperature 68.0 - 572 Â°F	
Specific Heat Capacity	0.500 J/g-Â°C	0.120 BTU/lb-Â°F	
	@Temperature 20.0 Â°C	@Temperature 68.0 Â°F	
Thermal Conductivity	15.0 W/m-K	104 BTU-in/hr-ftÂ²-Â°F	
	@Temperature 20.0 Â°C	@Temperature 68.0 Â°F	

Component Elements Properties	Metric	English	Comments
Boron, B	1.1 %	1.1 %	
Carbon, C	0.013 %	0.013 %	
Chromium, Cr	18.5 %	18.5 %	
Iron, Fe	66.687 - 66.787 %	66.687 - 66.787 %	As remainder
Manganese, Mn	0.80 %	0.80 %	
Nickel, Ni	12.5 %	12.5 %	
Nitrogen, N	<= 0.10 %	<= 0.10 %	
Silicon, Si	0.30 %	0.30 %	

Electrical Properties	Metric	English	Comments
	0.0000950 ohm-cm	0.0000950 ohm-cm	

Electrical Properties	Metric	English	Comments
	@ Temperature 20.0 °C	@ Temperature 68.0 °F	

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