

C 955 Nickel Aluminum Bronze

Bronze Family: Nickel Aluminum Bronze

955
Color
Code

C 955 Nickel Aluminum Bronze is a high strength nickel-bearing aluminum bronze exhibiting excellent yield, compressive strength, high hardness and adequate elongation. It is a good bearing material suitable for heavy duty, high shock and high impact applications. It exhibits excellent corrosion resistance, heat resistance, good machinability and weldability. Additional strength can be achieved through heat treating. It is used as heavy duty bushings and bearings, gears, and wear parts. It finds use in many marine applications as well as pump parts, machine tool parts, aircraft parts and military applications.

Equivalent Specifications				
ASTM B505/B505M (Copper Alloy UNS No. 95500 Continuous Cast)				
ASTM B271 (Copper Alloy UNS No. 95500 Centrifugal Cast)				
Reference Specifications				
SAE	Federal Specification	Military Specification	CDA	AMS
SAE J461 SAE J462	QQ-C-390	MIL-B-16033 Class 4	C95500	AMS 4880 (Heat treated form)

Equivalent specifications are verified and updated annually.
Specifications shown are current as of May 4, 2010.

Available from stock
at Morgan Bronze in:

Rounds



Chemical Composition (%)**				
Cu	Fe	Al	Ni	Mn
78.0 min.	3.0-5.0	10.0-11.5	3.0 – 5.5*	3.50 max.
Sum of all named elements = 99.5%				
Mechanical Properties				
	English	Metric		
Tensile Strength, min.	95 ksi	655 MPa		
Yield Strength, min.	42 ksi	290 MPa		
Elongation in 2 in. or 50 mm, min.	10%	10%		
Heat Treated Values				
Tensile Strength, min.	110 ksi	758 MPa		
Yield Strength, min.	62 ksi	427 MPa		
Elongation in 2 in. or 50 mm, min.	8%	8%		

* Nickel including cobalt

** Values shown pertain to ASTM B505/505M only

Values for ASTM B271 differ slightly. Contact our QA department for clarification

Phone: 847-526-6000

Toll Free: 800-445-9970

Fax: 847-526-3960

Email: info@morganbronze.com



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(continued)

Machinability Rating 50 (Free Cutting Brass = 100)

Physical Properties		
	English	Metric
Melting Point – Liquidus	1930°F	1054°C
Melting Point – Solidus	1900°F	1038°C
Density	0.272 lb/in ³ at 68°F	7.53 gm/cm ³ @ 20°C
Specific Gravity	7.530	7.53
Electrical Resistivity	122.80 ohms-cmil/ft @ 68°F	20.41 microhm-cm @ 20°C
Electrical Conductivity	8% IACS @ 68°F	0.049 MegaSiemens/cm @ 20°C
Thermal Conductivity	24.20 Btu · ft/(hr · ft ² · °F) @ 68°F	41.9 W/m · °K @ 20°C
Coefficient of Thermal Expansion	9 · 10 ⁻⁶ per °F (68-572°F)	16.2 · 10 ⁻⁶ per °C (20°-300° C)
Specific Heat Capacity	0.10 Btu/lb/°F @ 68°F	419.0 J/kg · °K @ 293°K
Modulus of Elasticity in Tension	16,000 ksi	110,000 MPa

Physical Properties provided by CDA

Fabrication Practices		Thermal Properties	
Soldering	Good	Stress Relieving Temperatures	600° F or 316° C
Brazing	Fair	Time @ Temperature	1 Hr. per inch of wall thickness
Oxyacetylene Welding	Not Recommended	Responds to Heat Treatment	Yes
Gas Shielded Arc Welding	Good	Solution Heat Treating Temperature	1600°-1675° F or 872°-914° C
Coated Metal Arc Welding	Good	Time @ Temperature	1 Hr. per inch of wall thickness
		Solution Medium	Water or oil per design
		Annealing Temperature	1150°-1225° F or 622°-663° C
		Time @ Temperature	1 Hr. per inch of wall thickness

Fabrication Practices provided by CDA

Thermal Properties provided by CDA

DISCLAIMER:

The Physical, Fabrication and Thermal Properties shown here represent reasonable approximations suitable for general engineering use. Due to commercial variations in compositions and to manufacturing limitations, they should not be used for specification purposes. See applicable ASTM International specification references.