954 Aluminum Bronze

Bronze Family: Aluminum Bronze

954 Color Code

C 954 Aluminum Bronze is the most popular of Aluminum Bronze alloys, providing high tensile and yield strength, good ductility, weldability and machinability, excellent resistance to wear, fatigue and deformation under shock and load. It exhibits excellent corrosion resistant properties. This alloy and most of the alloys in this family provide flexible mechanical properties with heat treatment and small additions of nickel. It's used as gears, worm wheels, bushings, bearings, wear strips, valve bodies, valve seats and valve guides in chemical, marine, aircraft, machine tools and earth moving machinery.

Equivalent Specifications

ASTM B505/B505M (Copper Alloy UNS No. 95400 Continuous Cast)

ASTM B271 (Copper Alloy UNS No. 95400 Centrifugal Cast)

Reference Specifications

SAE	Federal Specification	Military Specification	Ingot Number	CDA	ASME
SAE J461 SAE J462	QQ-C-390 QQ-B-671 Class 3	MIL-B-16033 Class 3	415	C95400	ASME SB271

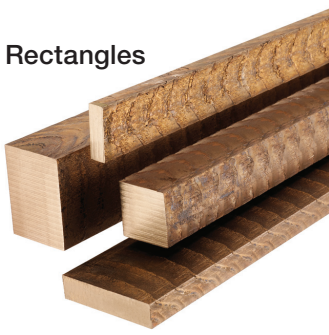
Equivalent specifications are verified and updated annually.
Specifications shown are current as of May 4, 2010.

Available from stock at Morgan Bronze in:

Rounds

Tubes

Rectangles



Chemical Composition (%)**

Cu	Fe	Al	Ni	Mn
83.0 min.	3.0-5.0	10.0-11.5	1.5* max.	0.50 max.
Sum of all named elements = 99.5%				

Mechanical Properties

	English	Metric
Tensile Strength, min.	85 ksi	586 MPa
Yield Strength, min.	32 ksi	221 MPa
Elongation in 2 in. or 50 mm, min.	12%	12%
Heat Treated Values		
Tensile Strength, min.	95 ksi	655 MPa
Yield Strength, min.	45 ksi	310 MPa
Elongation in 2 in. or 50 mm, min.	10%	10%

* Nickel including cobalt
** Values shown pertain to ASTM B505/505M only
Values for ASTM B271 differ slightly. Contact our QA department for clarification

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mbp MORGAN Bronze Products, Inc.

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(continued)

Machinability Rating 60 (Free Cutting Brass = 100)

Physical Properties

	English	Metric
Melting Point – Liquidus	1900°F	1038°C
Melting Point – Solidus	1880°F	1027°C
Density	0.269 lb/in^3 at 68°F	7.45 gm/cm^3 @ 20°C
Specific Gravity	7.450	7.45
Electrical Resistivity	80.20 ohms-cmil/ft @ 68°F	13.33 microhm-cm @ 20°C
Electrical Conductivity	13% IACS @ 68°F	0.075 MegaSiemens/cm@ 20°C
Thermal Conductivity	33.90 Btu · ft/(hr · ft^2 · °F) @ 68°F	58.7 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	15,500 ksi	107,000 MPa

Physical Properties provided by CDA

Fabrication Practices

Soldering	Good
Brazing	Good
Oxyacetylene Welding	Not Recommended
Gas Shielded Arc Welding	Good
Coated Metal Arc Welding	Good

Fabrication Practices provided by CDA

Thermal Properties

Stress Relieving Temperatures	600° F or 316° C
Time @ Temperature	1 Hr. per inch of wall thickness
Responds to Heat Treatment	Yes
Solution Heat Treating Temperature	1600°-1675° F or 872°-914° C
Time @ Temperature	1 Hr. per inch of wall thickness
Solution Medium	Water
Annealing Temperature	1150°-1225° F or 622°-663° C
Time @ Temperature	1 Hr. per inch of wall thickness

Thermal Properties provided by CDA