

# C 314 Commercial Bronze

Bronze Family: Leaded Commercial Bronze



**C 314 Commercial Bronze** is a Morgan standard alloy and finds use in hardware applications, electrical applications, as well as fasteners and industrial applications. Uses include various electrical connectors, screws and nuts, pickling crates, fixtures and racks. It is also common in screw machine applications.

Equivalent Specifications
ASTM B140/ B140M (Copper Alloy UNS No. 31400)
Reference Specifications
Mil-V-18436

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	Pb	Fe	Ni	Zn	
87.5 – 90.5	1.3 – 2.5	0.10 max.	0.7 max.	Remainder	
Sum of all named elements = 99.6%					
Mechanical Properties					
Minimum Tensile Properties, English/Metric					
Temper HO2 half hard					
Nominal Diameter	Tensile Strength		Yield Strength*		Elongation**
Inches/mm	ksi	MPa	ksi	MPa	%
½" and under/ 12 mm	50	345	30	205	7
Over ½ to 1"/12-25 mm incl	45	310	27	185	10
Over 1.00"/25 mm	40	275	25	170	12
Temper HO4 hard					
Nominal Diameter	Tensile Strength		Yield Strength*		Elongation**
Inches/mm	ksi	MPa	ksi	MPa	%
2" and under/50 mm	53	365	40	275	6

\* Yield Strength at 0.5% Extension under Load, min. ksi/MPa

\*\*Elongation in 4D

Chemical and Physical Properties shown here pertain to ASTM B140/B140M only.

**Machinability Rating 80 (Free Cutting Brass = 100)**



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(continued)

Physical Properties		
	English	Metric
Melting Point – Liquidus	1900° F	1038° C
Melting Point – Solidus	1850° F	1010° C
Density	0.319 lb/in <sup>3</sup> at 68° F	8.83 gm/cm <sup>3</sup> @ 20° C
Specific Gravity	8.830	8.83
Electrical Resistivity (Annealed)	24.70 ohms-cmil/ft @ 68° F	4.11 microhm-cm @ 20° C
Electrical Conductivity (Annealed)	42% IACS @ 68° F	0.246 MegaSiemens/cm @ 20° C
Thermal Conductivity	104 Btu · ft/(hr · ft <sup>2</sup> ·°F) @ 68° F	180.0 W/m·°K @20° C
Coefficient of Thermal Expansion	10.2 · 10 <sup>-6</sup> per °F (68-572° F)	18.4 ·10 <sup>-6</sup> per °C (20-300° C)
Specific Heat Capacity	0.090 Btu/lb/°F @ 68° F	377.1 J/kg · °K @293° K
Modulus of Elasticity in Tension	17,000 ksi	117,000 MPa

Physical Properties provided by CDA

Fabrication Practices			
Soldering	Excellent	Capacity for Being Cold Worked	Good
Brazing	Good	Capacity for Being Hot Formed	Poor
Oxyacetylene Welding	Not Recommended		
Gas Shielded Arc Welding	Not Recommended	Annealing Temperature – Minimum	800° F or 427° C
Coated Metal Arc Welding	Not Recommended	Annealing Temperature – Maximum	1200° F or 649° C
Resistance Welding – Spot	Not Recommended		
Resistance Welding – Seam	Not Recommended		
Resistance Welding – Butt	Fair		

Fabrication Practices 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.