C932000

Product Description:	**High-Leaded Tin Bronze**
Soilds:	**1/2" to 13" OD**
Tubes	**1" to 16" OD**
Rectangles:	**Up to 20"**
Standard Lengths:	**144"**
Shape/Form	**semi-finished, mill stock or near-net shapes, anode, bar stock, billet/bloom, squares, hex, plate, profile or structural shape, flats/rectangular bar**

TYPICAL USES

Automotive	**automotive fittings**
Fasteners	**washers**
Industrial	**thrust washers, pumps, bushings, machine parts, main spindle bearings, machine tool bearings, bearings for cranes, trunion bearings, roll neck bearings, rolling mill bearings, linkage bushings for presses, fuel pump bushings, water pump bushings, diesel engine wrist pin bushings, forging press toggle lever bearings, hydraulic press stuffing box, hydraulic press main lining, pump impellers, general purpose bushings, fittings, pump fixtures, insert bearings, bearings**

SIMILAR OR EQUIVALENT SPECIFICATION

CDA	ASTM	ASARCON	SAE	AMS	FEDERAL	MILTIARY	OTHER
C93200	B505	77	660 J461 J462		QQ-C-390B TYPE III	MIL-B-11553,	BEARING BRONZE

CHEMICAL COMPOSITION

Alloy	Cu%	Sn%	Pb%	Zn%	Fe%	Ni%	Sb%	P %	S%	Al %	Si%
C93200	81.00-85.00	6.30-7.50	6.00-8.00	2.00-4.00	0.2	1	0.35	0	0	0	0

Chemical Composition according to ASTM B505/B505M-14

MACHINABILITY

Alloy	Machinability Rating	Density (lb/cu in.)
C93200	70	0.322

MECHANICAL PROPERTIES

Tensile Strength, min	Yield Strength, at .5% extension under load min	Elongation in 2 in. or 50 mm min	Brinell Hardness	Remarks
ksi	Mpa	ksi	Mpa	% typical BHN
35	241	20	138	10

Mechanical Properties according to ASTM B505/B505M-14

PHYSICAL PROPERTIES

	US Customary	Metric
Melting Point – Liquidus	1790˚ F	977˚ C
Melting Point – Solidus	1570˚ F	854˚ C
Density	0.322 lb/in3 at 68˚ F	8.91 gm/cm3 at 20˚ C
Specific Gravity	8.91	8.91
Electrical Resistivity	85.90 ohms-cmil/ft at 68˚ F	14.29 microhm-cm at 20˚ C
Electrical Conductivity	12% IACS at 68˚ F	0.07 MegaSiemens/cm at 20˚ C
Thermal Conductivity	33.60 Btu · ft/(hr · ft2 · ˚F) at 68˚ F	58.2 W/m at 20˚ C
Coefficient of Thermal Expansion	100 · 10-6 per ˚F (68˚-572˚ F)	18.0 · 10-6 per ˚C (20˚-300˚ C)
Specific Heat Capacity	0.090 Btu/lb/˚F at 68˚ F	377.1 J/kg at 293˚ C
Modulas of Elasticity in Tension	14500 ksi	100000 MPa
Magnetic Permeability	10	1

PHYSICAL PROPERTIES PROVIDED BY CDA

Fabrication Practices

Joining Technique	Suitability
Soldering	Excellent
Brazing	Good
Oxyacetylene Welding	Not Recommended
Gas Shielded Arc Welding	Not Recommended
Coated Metal Arc Welding	Not Recommended

Fabrication Properties provided by CDA

Thermal Properties

TREATMENT	Temp./Time - US	Temp./Time - SI
Stress Temperature	500	260
Solution Minimum		
Solution Maximum		
Solution Time 0.0	0	
Solution Medium		
Precipitation Value		
Precipitation Time		
Precipitation Medium		
Annealing Minimum		
Annealing Maximum		
Annealing Time		
Hot Works Minimum		
Hot Works Maximum		

Thermal Properties provided by CDA