

C51900 Phosphorus Bronze

C51900 is the most widely used of the wrought phosphor bronzes, particularly in spring applications where the excellent resistance and fatigue endurance of various work-hardened tempers are major advantages of the alloy. It also has a low coefficient of friction running against steel, combined with high strength. This makes it a popular choice for wear resistant guide strips and similar bearing applications involving boundary lubrication conditions.

TYPICAL USES for C51900 Phosphor Bronze:

Electronic connectors, electrical connectors and electrical flexing contact blades



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Equivalent Specifications:

Specifications	ASTM	BS	EN	JIS	DIN	ISO	IS
Designations	C51900	PB103	CW452K	H3110(92) C5191 P/R	2.1025	CuSn6	7814 Grade III

Chemical Composition:

	Cu	Pb	Sn	Zn	Fe	P
Min	-	-	5	-	-	0.03
Max	Rem.	0.05	7	0.3	0.1	0.35

Specifications:

Product	Specification
Bar	ASTM B103
Plate	ASTM B103
Sheet	ASTM B103

Fabrication Properties:

Joining Technique	Suitability
Soldering	Excellent
Brazing	Excellent
Oxyacetylene Welding	Fair
Gas Shielded Arc Welding	Good
Coated Metal Arc Welding	Poor
Spot Weld	Good
Seam Weld	Poor
Butt Weld	Excellent
Capacity for Being Cold Worked	Excellent
Capacity for Being Hot Formed	Poor
Machinability Rating	20

Physical Properties:

Melting Point - Liquidus	1900 °F
Melting Point - Solidus	1700 °F
Density	0.319 lb/cu in. at 68°F
Specific Gravity	8.84
Electrical Conductivity	14 % IACS at 68°F
Thermal Conductivity	38 Btu/ sq ft/ ft hr/ °F at 68°F
Coefficient of Thermal Expansion 68-212	10 10 ⁻⁶ per °F (68 – 212°F)
Specific Heat Capacity	0.09 Btu/ lb /°F at 68°F
Modulus of Elasticity in Tension	16000 ksi
Modulus of Rigidity	6000 ksi

Sizes Available:

TUBES	6.35 mm to 110mm
ROUND WIRES	1 mm to 11mm
ROUND RODS	1.2 to 250 mm
HEX RODS	Min. 5 mm to Max. 60 mm
SQUARE RODS	Min. 4 mm to Max. 60 mm
FLATS	Min. 4 mm thickness and max width of 120mm
PROFILES	As per customer drawings
HOLLOW RODS	Min Bore Size 20mm and Max OD 130mm