

C51980 Phosphorus Bronze

C51980 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.



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Equivalent Specifications:

Specifications	BS	EN	JIS	DIN	IS	ISO	Russian
Designation	C11	-	-	2.102	-	CuSn6	-

Chemical Composition:

	Cu	Pb	Sn	Zn	Fe	P	Ni
Min (%)			5.5		0.05	0.01	0.05
Max (%)	Rem	0.05	7.0	0.30	0.20	0.35	0.20

Specifications:

Product	Specification
Strip	ASTM B888/B88M

Fabrication Properties:

Joining Technique	Suitability
Soldering	Excellent
Brazing	Excellent

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

Physical Properties:

Melting Point - Liquidus	1910 °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 68-572	10 10 ⁻⁶ per °F (68 – 572°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