

## 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	ASTM	BS	EN	JIS	DIN	ISO	IS
Designations	C51980	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

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

**Physical Properties:**

<b>Melting Point - Liquidus</b>	1910 °F
<b>Melting Point - Solidus</b>	1700 °F
<b>Density</b>	0.319 lb/cu in. at 68°F
<b>Specific Gravity</b>	8.84
<b>Electrical Conductivity</b>	14 % IACS at 68°F
<b>Thermal Conductivity</b>	38 Btu/ sq ft/ ft hr/ °F at 68°F
<b>Coefficient of Thermal Expansion 68-572</b>	10 10 <sup>-6</sup> per °F (68 – 572°F)
<b>Modulus of Elasticity in Tension</b>	16000 ksi
<b>Modulus of Rigidity</b>	6000 ksi

**Sizes Available:**

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