Wieland-B05

CuSn5 | Phosphor bronze

Material designation

EN	CuSn5 CW451K
UNS	C51000

Chemical composition*

Sn	5 %
P	0.35%
Cu	balance

**Reference values in % by weight*

Material properties and typical applications

Wieland-B05 is a phosphor bronze with a tin content of 5 % making it possible to achieve medium mechanical strength. It exhibits good resistance to wear and corrosion. Phosphor bronzes have good cold working properties. Wieland-B05 is used primarily in the UK and USA.

Physical properties*

Electrical conductivity	MS/m %IACS	10 18
Thermal conductivity	W/(m·K)	96
Thermal expansion coefficient (0–300 °C)	10^{-6}/K	18
Density	g/cm³	8.85
Moduls of elasticity	GPa	120

**Reference values at room temperature*

Types of delivery

The BU Extruded Products supplies bars, wire, sections and tubes. Please get in touch with your contact person regarding the available delivery forms, dimensions and tempers.

Fabrication properties

Forming

Machinability (CuZn39Pb3 = 100 %)	20 %
Capacity for being cold worked	excellent
Capacity for being hot worked	poor

Surface treatment

Polishing mechanical electrolytic	 excellent excellent
Electroplating	excellent

Joining

Resistance welding (butt weld)	good
Inert gas shielded arc welding	excellent
Gas welding	excellent
Hard soldering	excellent
Soft soldering	excellent

Heat treatment

Melting range	930–1,060 °C
Hot working	750–850 °C
Soft annealing	500–700 °C 1–3 h
Thermal stress relieving	200–300 °C 1–3 h

Corrosion resistance

In general excellent resistance to corrosion in seawater, industrial atmosphere and to stress corrosion cracking.

Product standards

Rod	EN 12163
Wire	EN 12166

Wieland-Werke AG | Graf-Arco-Straße 36 | 89079 Ulm | Germany
info@wieland.com | wieland.com

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