

Wieland-B06/BV9 Phosphor bronze

Extruded/drawn products

Wieland-B06/BV9 is a phosphor bronze containing 6 % tin making it possible to achieve high mechanical strength and good spring properties. It also exhibits good resistance to wear and corrosion. Phosphor bronze has good cold working properties and can be machined satisfactorily with suitable tool parameters.

Chemical composition*			Material designation	
Sn		6.3%	EN	CuSn6, CW452K
P	for B06	0.04%	UNS	C51900
	for BV9	0,2%	DIN*	CuSn6-2.1020
Cu		balance	BS*	not standardized
			NF*	CuSn6P

* Reference values in % by weight

* Former national standards

Physical properties*			Fabrication properties		Corrosion resistance*	
Electrical conductivity	MS/m	9	Forming	Machinability (CuZn39Pb3 = 100 %)	20%	In general excellent resistance to corrosion in seawater, industrial atmosphere and to stress corrosion cracking.
	% IACS	15				
Thermal conductivity	W/(m*K)	75	Capacity for being cold worked	excellent		
			Capacity for being hot worked	poor		
Thermal expansion coefficient (0-300°C)	10 ⁻⁶ /K	18.5	Joining			
			Resistance welding	good		
Density	g/cm ³	8.8	Inert gas shielded arc welding	good		
			Hard soldering	good		
Modulus of elasticity	GPa	118	Soft soldering	excellent		

* Reference values at room temperature

1 GPa = 1 kN/mm²

1 MS/m = 1 m/Ω • mm²

Surface treatment			Product standards	
Polishing	mechanical	good	Rod	EN 12163
	electrolytic	good	Wire	EN 12166
Electroplating		good	Section	EN 12167
			Tube	EN 12449
Heat treatment				
Melting range		910-1040 °C		
Hot working		750-850 °C		
Soft annealing		500-700 °C, 1-3 h		
Thermal stress-relieving		200-300 °C, 1-3 h		

Mechanical properties (values can be achieved and are a function of size and form)

Reference values	from (soft/extruded)	to (hard)
R _m [MPa]	350	1160
R _{p0,2} [MPa]	170	840
A ₅ [%]	65	3
HB	85	-

(Values achievable with wire)

Forms and sizes available

Wieland - B06/BV9

Material										
Wieland	EN designation		Outside diameter		Wall thickness		Circumscribing diameter		Diameter / width across flats	
	Brief designation	Number	from	to	from	to	from*	to	from	to
B06/BV9	CuSn6	CW452K	6	90	0.1	9				
Round tubes			6	90	0.1	9				
Drawn sections							2.5	100		
Extruded sections								100		
Sectional tubes								70		
Round and polygonal rods									2	100
Round wires									0.3	
Polygonal wires									2	

All values in mm

* Depending on the form, cross-sections in the lower size range are also available as wire.

Wieland

Wieland-Werke AG

89070 Ulm

Germany

Telephone:

+49 (0) 731 944 - 0

Telefax:

+49 (0) 731 944 - 28 79

info@wieland.de

www.wieland.de

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