

Wieland-BD3

Extruded/Drawn Products

Wieland

Wieland-BD3 is a lead free bronze with a gold-yellow color.

Its grain structure and intermetallics distribution is very homogenous and its mechanical properties are isotropic. As a consequence of the homogeneity the material has an excellent cold and hot workability.

Wieland-BD3 is suitable for the production of superconducting wire based on Nb₃Sn.

Chemical Composition

Cu	balance
Sn	14,5 %
Ti	0,25 %

Material Designation

Wieland-BD3 is not standardized.

Physical Properties*

Electrical conductivity	MS/m	5
	% IACS	9
Thermal conductivity	W/(m•K)	40
Density	g/cm ³	8,9
Modulus of elasticity	kN/mm ²	100

* Reference values at room temperature
1 N/mm² = 1 Mpa
1 MS/m = 1 m/Ω • mm²

Processing Properties

Machining and Forming

Machinability (CuZn39Pb3 = 100)	40
Cold workability	excellent
Hot workability	excellent

Joining

Resistance Welding	fair
Brazing	fair
Soft soldering	good

Surface Treatment

Polishing, mechanical	excellent
Polishing, electrolytical	excellent
Electroplating	excellent

Heat Treatment

Melting range	980 - 798 °C
Hot working	630 - 740 °C
Soft annealing	500 - 600 °C
Thermal stress-relieving	300°C, 3 h

Corrosion Resistance

Tin bronzes generally exhibit good corrosion resistance towards atmospheric influences, organic substances (perspiration, environmental effects) and neutral or alkaline components.

Mechanical Properties

Reference values*		spring hard	soft
R _m	[N/mm ²]	> 900	475
R _{p0,2}	[N/mm ²]	> 800	175
A ₅	[%]	> 1	50
HV		> 250	110

*Reference values can be achieved with standard production.

Sizes available

Material			Round tubes				Sections / sectional tubes				Rods		Availability
			Outside diam.		Wall thickness		Drawn sections	Extruded sections	Sectional tubes	Round and polygonal rods			
	EN-designation	Number	mm				circumscribing diameter				Diameter / hex. width		
Wieland	Brief designation			from	to	from	to	from	to	to	to	from	to
BD3			10	160	1	15					2	100	

Note: The indicated dimensions apply to simple sections.
Special sizes and profiles are to be checked on request.

Wieland

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