

Phosphor Bronze

CuSn5 / CW451K / C51000 / PB102

Version: 4

Reference standard: EN 12166

Symbol	Number	Element	Cu	Fe	Ni	P	Pb	Sn	Zn	Bal.	Density g/cm ³
CuSn5	CW451K	Min %	Rem	-	-	0.01	-	4.5	-	-	8.9
		Max %	-	0.1	0.2	0.4	0.02	5.5	0.2	0.2	

Phosphor bronze is a copper tin alloy with a trace of phosphorus. The level of tin varies from 5 - 8% depending on the alloy. Phosphor Bronze wire is manufactured in flat, round and square section in a full range of sizes and tempers to meet customer requirements. Phosphor Bronze wire is also offered in tinned condition.

Typical Tensile Strength N/mm ²						
Size Range	Soft	¼ Hard	½ Hard	¾ Hard	Hard	Spring Hard
0.1-0.5mm	360-450	450-550	550-660	660-780	780-930	930min
0.5-1.5mm	350-440	440-540	540-640	630-740	730-900	900min
1.5-4.0mm	330-420	410-500	500-600	590-690	690-850	850min
4.0-8.0mm	-	-	470-570	560-660	-	-
4.0-20.0mm	320-410	400-500	-	-	-	-

Physical Properties:

- Resistivity: 0.102 ($\Omega \times \text{mm}^2/\text{m}$)
- Temperature coefficient of resistance at 20-100°C (1/K): 0.00079
- Elongation at soft temper: >25%

Tolerances:

<0.25mm	±0.005mm
0.25-0.50mm	±0.008mm
0.50-1.00mm	±0.012mm
1.00-2.00mm	±0.02mm
2.00-4.00mm	±0.03mm

Typical applications:

- Spring wire
- Resistance wire
- Industrial fasteners
- Brush wire



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