

Tin Bronze

Bz5 (C51000)

Material Designation*

UNS	C51000
EN	CuSn5 (CW 451 K)
JIS	/
GB	QSn5-0.2

Chemical Composition

Cu	Balance	%
Sn	4.2-5.8	%
P	0.03-0.35	%



Characteristics

Tin phosphorus bronze has high strength, elasticity, wear resistance and diamagnetism. It has good machinability, high flame resistance to electric spark and can be easily welded and brazed. It has strong corrosion resistance in air and fresh water.

Typical Applications

It is widely used for plug pin (such as RJ45), elastic components and other consumer electronics industries.

Physical Properties

Density ^①	8.8	g/cm ³
Electrical conductivity ^①	17	%IACS
Thermal conductivity ^①	75	W/(m·K)
Coefficient of thermal expansion ^②	18.5	10 ⁻⁶ /K
Modulus of elasticity	115	GPa

Note①: Temperature for testing is 20°C.

Note②: Temperature range for testing is 20-300°C.

Fabrication Properties

Cold workability	Excellent
Hot workability	Poor
Brazing	Excellent
Machinability compared with C36000	20%

Bz5 (C51000)

Mechanical Properties

Diameter	Temper	Tensile Strength	Yield Strength	Elongation
mm		MPa	MPa min.	%
0.1 < Φ ≤ 1.0	H02	540-740	370	--
1.0 < Φ ≤ 2.0	H02	520-720	350	--
2.0 < Φ ≤ 4.0	H02	500-700	330	≥4
4.0 < Φ ≤ 6.0	H02	480-680	310	≥8
6.0 < Φ ≤ 8.5	H02	460-660	290	≥10
0.1 < Φ ≤ 1.0	H04	880-1130	700	--
1.0 < Φ ≤ 2.0	H04	860-1060	680	--
2.0 < Φ ≤ 4.0	H04	830-1030	650	--
4.0 < Φ ≤ 6.0	H04	780-980	600	--
6.0 < Φ ≤ 8.5	H04	690-950	510	--

Tolerance and Delivery Form

Diameter	Standard coil weights	Tolerance ^③	Coil ID
mm	kg	mm	mm
0.1 < Φ ≤ 0.3	1-5	0.01	Spool packing
0.5 < Φ ≤ 0.8	5-12	0.01	160-200
0.8 < Φ ≤ 1.1	15-25	0.02	270-300
1.1 < Φ ≤ 1.6	18-30	0.02	260-300
1.6 < Φ ≤ 2.5	25-40	0.03	320-350
2.5 < Φ ≤ 4.0	30-45	0.03	370-400
4.0 < Φ ≤ 6.5	45-60	0.04	370-400
6.5 < Φ ≤ 10.0	200-400	0.04	1000-1200
8.0 < Φ ≤ 12.0	200-400	0.05	1200-1400

Note^③: The tolerances listed in the table are specified as all plus or all minus. When tolerances are specified as plus and minus (\pm), half the values given.

*Composition UNS
 Conductivity UNS
 Mechanical Properties For reference only, measured at room temperature, 68°F(20°C).
 Fabrication Properties UNS, Machinability for reference only.
 Other Physical Properties For reference only

The datasheet is for your general information only and is not subject to revision. No claim can be derived from it unless is evidence of intent or gross negligence. The data given is with reference to the relevant standards as ASTM, BS EN, JIS, RWMA, SAE and is for reference only, no warranty can be derived from the data provided. The given info may not replace the customers' own tests.