

## boway 51000

### Material Designation

Boway Designation	boway 51000
UNS	C51000
EN	CuSn5
JIS	C5102
GB(China)	QSn5-0.2

### Chemical Composition\*

Sn	5	%
P	0.03-0.35	%
Cu	Rem.	

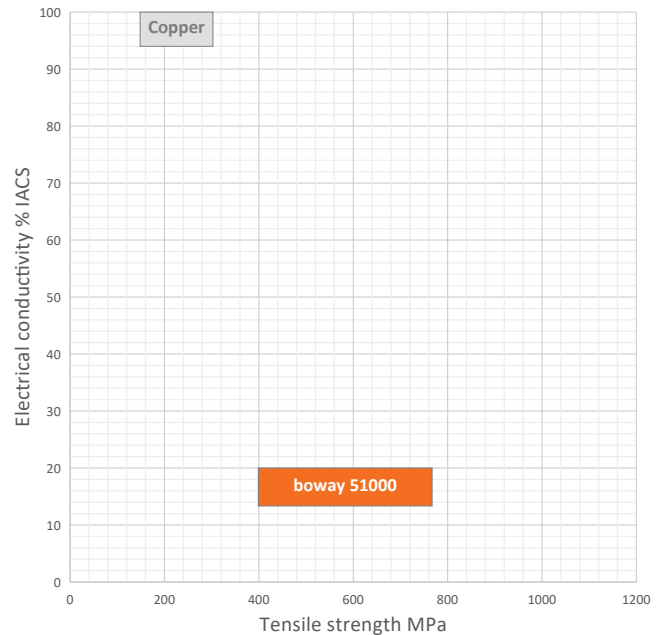
\* Nominal composition

### Application Target

Signal connector	Suitable
Power connector	Not recommended
Miniaturized connector	Suitable
Switch/Relay	Suitable
Semiconductor	Not recommended

### Fabrication Properties

Cold forming	Very good
Machining	Average
Electroplating	Very good
Hot dip tinning	Very good
Laser welding	Good
Resistance welding	Good
Soft soldering	Very good



### Characteristics

Excellent formability and high strength combined with low sensitivity to stress corrosion cracking.  
Very good corrosion resistance as well as excellent solderability.

### Physical Properties\*

Density	8.85	g/cm <sup>3</sup>
Electrical conductivity@20°C	17	% IACS
Thermal conductivity@20°C	10	MS/m
Specific heat capacity	96	W/(m·K)
Modulus of elasticity	0.38	J/(g·K)
Poisson's ratio	120	GPa
Coefficient of thermal expansion**	0.33	10 <sup>-6</sup> /K

\* Typical values at room temperature for reference

\*\* Average value between 20-300°C

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## Mechanical Properties (Values Underlined Are For Reference Only)

Temper	Tensile strength		Yield strength	Elongation	Hardness
	MPa	ksi	MPa	A50 %	HV
R400(1/2H)	400–505	58–73	≥ 325	≥ 10	<u>125–170</u>
R470(3/4H)	470–545	68–79	≥ 420	≥ 10	<u>145–185</u>
R525(H)	525–625	76–91	≥ 510	≥ 9	<u>170–210</u>
R605(EH)	605–710	88–103	≥ 585	≥ 2	<u>200–240</u>
R655(SH)	655–760	95–110	≥ 635	≥ 1	<u>210–250</u>
R690(ESH)	690–785	100–114	≥ 675	≥ 1	<u>220–270</u>
Annealed*	315–385	46–56	≥ 130	≥ 48	
H01*	340–420	49–61	≥ 150	≥ 32	
H02*	400–505	58–73	≥ 325	≥ 10	
H03*	470–545	68–79	≥ 420	≥ 10	
H04*	525–625	76–91	≥ 510	≥ 9	
H06*	605–710	88–103	≥ 585	≥ 2	
H08*	655–760	95–110	≥ 635	≥ 1	
H10*	690–785	100–114	≥ 675	≥ 1	

\*According to ASTM B888

## Bendability Bending thickness ≤ 0.5 mm; Bending width: 10 mm

Temper	90° R/T		180° R/T	
	Good Way	Bad Way	Good Way	Bad Way
R400	0	0.5	0	1.5
R470	0	1	0.5	1
R525	0	1.5	1	2
R605	1	2	1.5	3
R655	1	2.5	2	4
R690	-	-	-	-

90° bend test according to EN ISO7438, 180° bend test according to ASTM B820, shown values might show orange-peel, however no crack.

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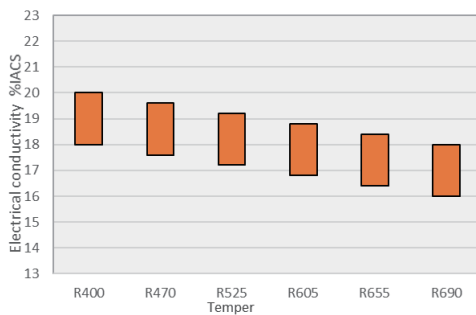
### Packaging

Standard coils with outside diameter up to 1300 mm.  
 Traverse-wound coils with drum weight up to 500 kg.  
 Multiple-coil up to 3 tons.

### Dimensions Available

Strip thickness 0.08–3.0mm, other gauges on request.  
 Strip width from 8.5 mm.  
 Electroplated and HDT strip available.

### Electrical Conductivity



### Fatigue Strength

The fatigue strength is defined as the maximum bending stress amplitude which a material withstands for 10.000.000 load cycles under symmetrical alternate load without breaking. It depends on the temper selected and can be estimated typically by 1/3 of tensile strength.