

## boway 51000

### Material Designation

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

### Chemical Composition\*

Sn	5	%
Cu	Rem.	

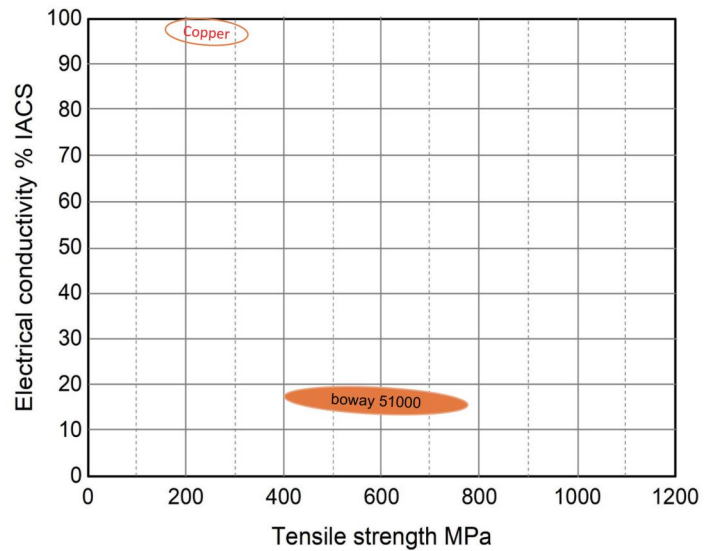
\* Nominal composition

### Application Target

Signal Connector	Suitable
Power Connector	Not Suitable
Miniaturized Connector	Suitable
Switch / Relay	Suitable
Semiconductor	Not recommend

### Fabrication Properties

Cold forming	Very good
Machining	Not suitable
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 against 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
	10	MS/m
Thermal conductivity @ 20°C	96	W/(m·K)
Specific heat capacity	0.38	J/(g·K)
Modulus of elasticity	120	GPa
Poisson's ratio	0.33	
Coefficient of thermal expansion**	17.8	10 <sup>-6</sup> /K

\* Typical values at room temperature for reference.

\*\* average value between 20-300°C

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### Mechanical Properties

Temper	Tensile strength		Yield strength	Hardness*	Elongation
	MPa	ksi	MPa	HV	A50 %
R400(1/2H)	400 - 505	58 - 73	≥ 325	125 - 170	≥ 10
R470(3/4H)	470 - 545	68 - 79	≥ 420	145 - 185	≥ 10
R525(H)	525 - 625	76 - 91	≥ 510	170 - 210	≥ 9
R605(EH)	605 - 710	88 - 103	≥ 585	200 - 240	≥ 2
R655(SH)	655 - 760	95 - 110	≥ 635	210 - 250	≥ 1
R690(ESH)	690 - 785	100 - 114	≥ 675	220 - 270	≥ 1

\*For reference only

### 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(1/2H)	0	0.5	0	1.5
R470(3/4H)	0	1	0.5	1
R525(H)	0	1.5	1	2
R605(EH)	1	2	1.5	3
R655(SH)	1	2.5	2	4
R690(ESH)	—	—	—	—

90° bend test According to EN ISO 7438, 180° bend test acc. to ASTM B820, shown values might show orange-peel, however no crack.

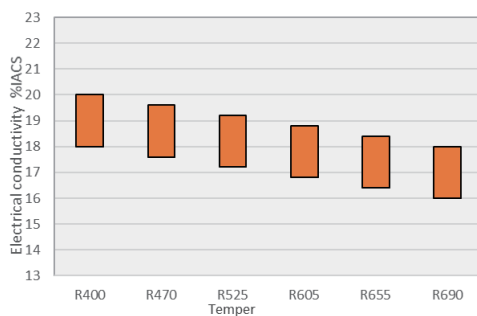
### Packaging

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 - 3.0 mm, 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. For solid solution fine grain materials fatigue strength might increase up to 0,5 \* of tensile strength.