

## boway 51900 SG

### Material Designation

Boway Designation	boway 51900 SG
UNS	C51900
EN	CuSn6
JIS	C5191
GB(China)	QSn6-0.2

### Chemical Composition\*

Sn	6	%
P	0.03-0.35	%
Cu	Rem.	

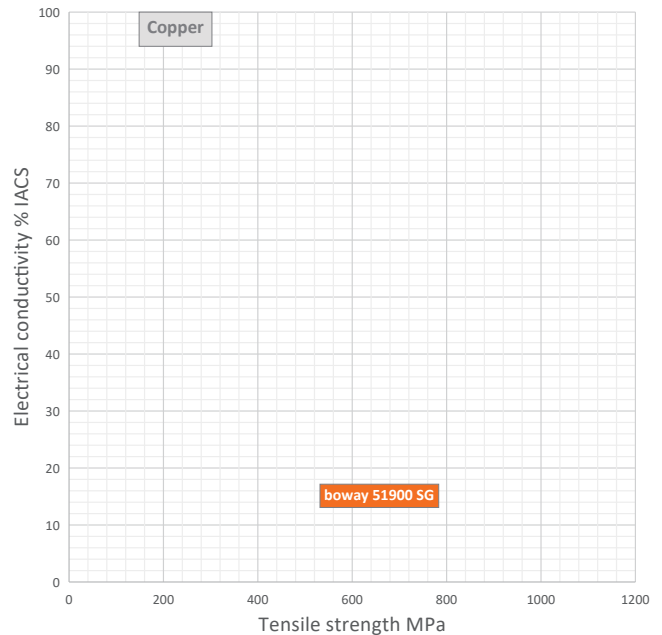
\* Nominal composition

### 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

Very fine microstructure provides excellent bendability and fatigue performance combined with high strength. Good corrosion resistance and low sensitivity against stress corrosion cracking. Excellent solderability. Low hot cracking tendency with resistance welding.

### Physical Properties\*

Density	8.8	g/cm <sup>3</sup>
Electrical conductivity@20°C	15	% IACS
Thermal conductivity@20°C	9	MS/m
Specific heat capacity	75	W/(m·K)
Modulus of elasticity	0.377	J/(g·K)
Poisson's ratio	120	GPa
Coefficient of thermal expansion**	0.34	
	18.5	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	Elongation	Hardness
	MPa	ksi	MPa	A50 %	HV0.2
R550	550–650	79–94	≥ 500	≥ 16	170–230
R670	670–780	97–113	≥ 660	≥ 7	200–260

\*For reference only

## Bendability

Bending thickness ≤ 0.4 mm; Bending width: 10 mm

Temper	90° R/T		180° R/T	
	Good Way	Bad Way	Good Way	Bad Way
R550	0	0	0	1
R670	1	2	1.5	3

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

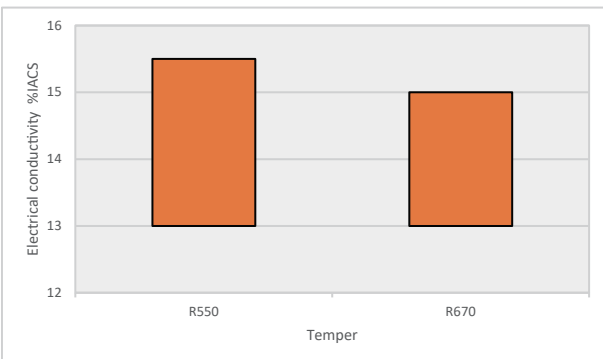
## Packaging

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 0.06–0.4 mm, other gauges on request.  
 Strip width from 8.5 mm.  
 Electroplated and Hot-dip tinned 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 1/2 of tensile strength.

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