

boway 51900

Material Designation

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

Chemical Composition*

Sn	6	%
Cu	Rem.	

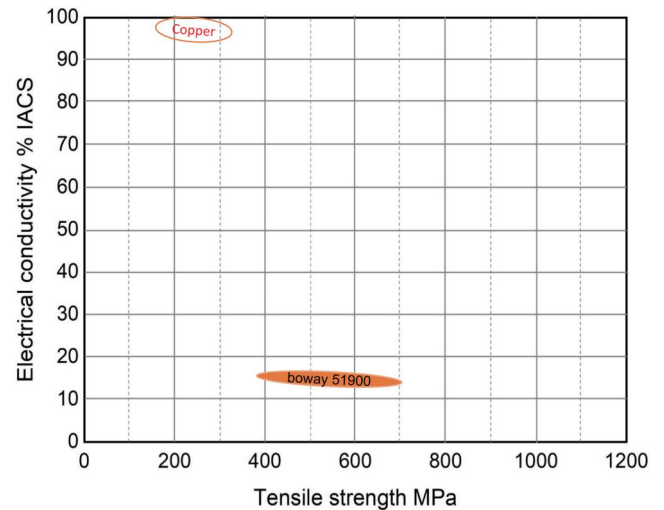
* Nominal composition

Application Target

Signal Connector	Suitable
Power Connector	Not recommend
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

Standard Bronze. Excellent formability and high strength combined with low sensitivity against stress corrosion cracking. Very good corrosion resistance as well as excellent solderability. Low hot cracking tendency with resistance welding.

Physical Properties*

Density	8.8	g/cm ³
Electrical conductivity @ 20°C	15	% IACS
	9	MS/m
Thermal conductivity @ 20°C	75	W/(m·K)
Specific heat capacity	0.377	J/(g·K)
Modulus of elasticity	120	GPa
Poisson's ratio	0.33	
Coefficient of thermal expansion**	18.5	10 ⁻⁶ /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			
R390(1/4H)	390 - 510	57 - 74	≥ 320	100 - 160	≥ 35
R490(1/2H)	490 - 620	72 - 90	≥ 420	150 - 205	≥ 20
R590(H)	590 - 685	86 - 100	≥ 510	180 - 230	≥ 8
R635(EH)	635 - 720	93 - 105	≥ 570	200 - 240	≥ 5
R690(SH)	≥ 690	≥ 100	≥ 620	≥ 210	—

*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
R390(1/4H)	0	0.5	0.5	1.5
R490(1/2H)	0.5	1	1	2
R590(H)	1	1.5	2	3
R635(EH)	2	4	3	8
R690(SH)	—	—	—	—

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

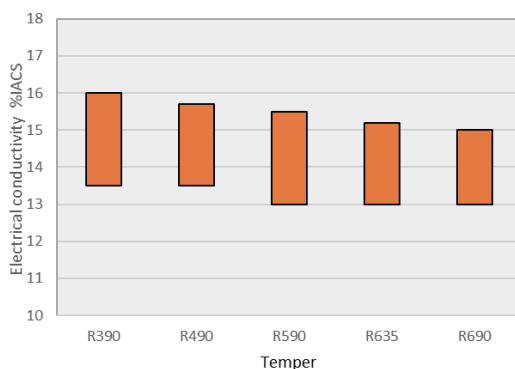
Packaging

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 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 0,5 * of tensile strength.

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