

boway 51000

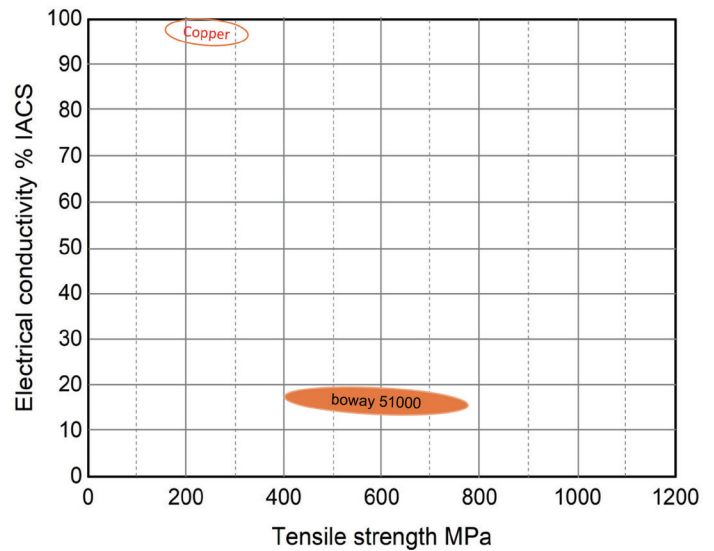
Material Designation

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

Characteristics

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

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

Physical Properties*

Density	8.85	g/cm ³
Electrical conductivity @ 20°C	18	% 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 ⁻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	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	180 - 220	≥ 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.

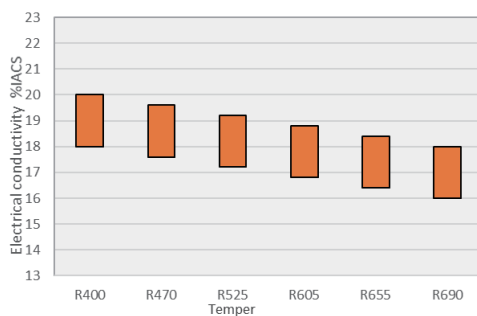
Packaging

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.

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