boway 52100

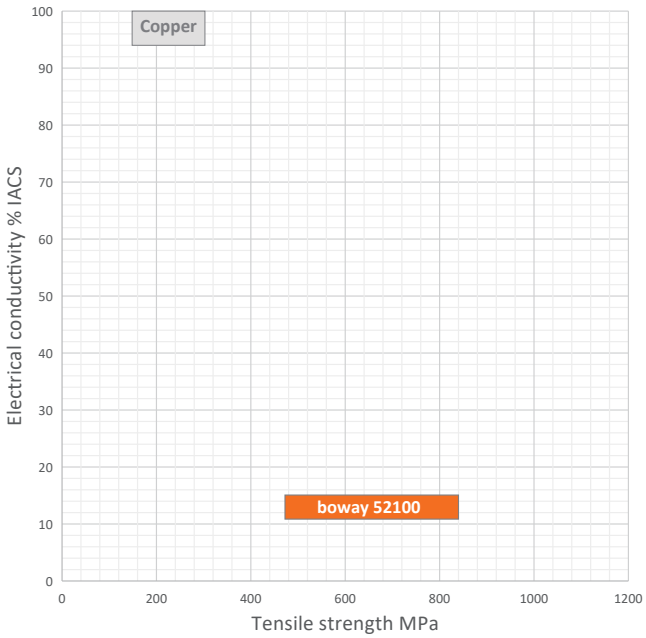
Material Designation

Boway Designation	boway 52100
UNS	C52100
EN	CuSn8
JIS	C5210
GB(China)	QSn8-0.3

Chemical Composition*

Sn	8	%
P	0.03-0.35	%
Cu	Rem.	

* Nominal composition



Application Target

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

Ideal for BTB connector, audio jack and other miniaturized connectors

Characteristics

Excellent formability and high strength combined with low sensitive to stress corrosion cracking.
Very good corrosion resistance as well as excellent solderability.
Low hot cracking tendency with resistance welding.

Fabrication Properties

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

Physical Properties*

Density	8.8	g/cm^3
Electrical	12	% IACS
conductivity@20°C	7	MS/m
Thermal conductivity@20°C	67	W/(m·K)
Specific heat capacity	0.377	J/(g·K)
Modulus of elasticity	115	GPa
Poisson's ratio	0.33	
Coefficient of thermal expansion**	18.2	10^{-6}/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	A 50 %	HV
R475(1/2H)	475–580	69–84	≥ 350	≥ 25	150–205
R550(3/4H)	550–635	80–92	≥ 485	≥ 18	170–210
R585(H)	585–690	85–100	≥ 540	≥ 12	185–235
R670(EH)	670–770	97–112	≥ 635	≥ 10	210–260
R725(SH)	725–820	105–119	≥ 690	≥ 3	230–270
R760(ESH)	760–840	110–122	≥ 725	≥ 2	245–285
Annealed*	385–450	56–65	≥ 160	≥ 60	
H01*	435–515	63–75	≥ 240	≥ 40	
H02*	475–580	69–84	≥ 350	≥ 25	
H03*	550–635	80–92	≥ 485	≥ 18	
H04*	585–690	85–100	≥ 540	≥ 12	
H06*	670–770	97–112	≥ 635	≥ 10	
H08*	725–820	105–119	≥ 690	≥ 3	
H10*	760–840	110–122	≥ 725	≥ 2	

*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
R475	0	0	0	0
R550	0	0.5	0.5	1
R585	0	1	1	2
R670	1.5	2	2	4
R725	2.5	4	5	7
R760	4	6	6	8

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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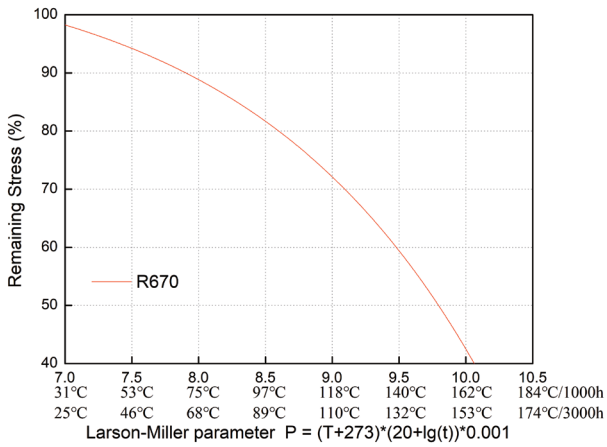
Thermal Stress Relaxation



P=Larson Miller parameter
T=temperature(℃)
t=time(h)
Example:
Application conditions: Maintain for 1000 hours at 100°C.
Formula substitution: T＝100, t＝1000
P=(100+273)×(20+lg (1000))×0.001=8.579
Graph reference: When P＝8.579, the stress retention rate is approximately 81%.
Conclusion: Under the conditions of 100°C /1000h, the remaining stress of this material is close to 81%.

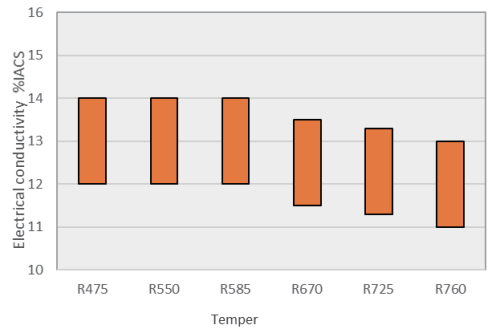
Packaging

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.

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