boway 70250

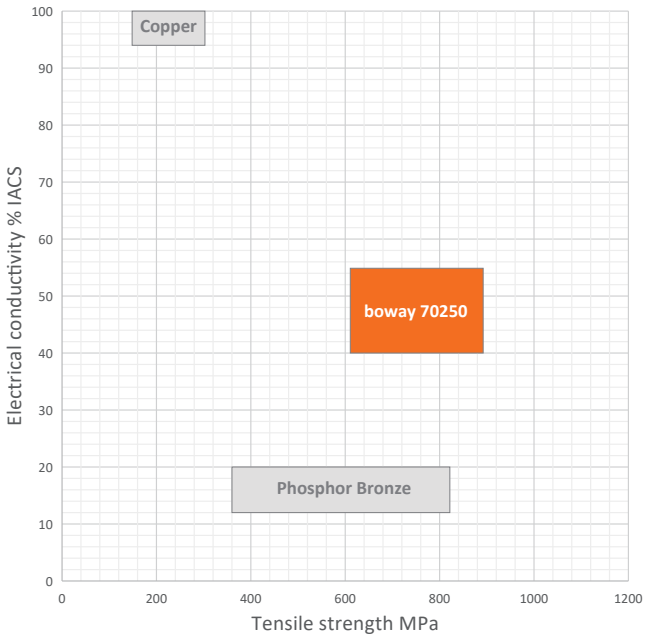
Material Designation

Boway Designation	boway 70250
UN S	C70250
EN	CuNi3SiMg
JIS	C7025
GB(China)	BSi3.2-0.7

Chemical Composition*

Ni	3	%
Si	0.65	%
Mg	0.15	%
Cu	Rem.	

* Nominal composition



Application Target

Signal connector	Very suitable
Power connector	Suitable
Miniaturized connector	Suitable
Switch/Relay	Very suitable
Semiconductor	Very suitable

Ideal for miniaturized connector and lead frame design, special qualities for PRESSFIT, QFP, QFN available

Characteristics

High strength combined with medium electrical conductivity. Very good stress relaxation resistance up to 175°C/1000h. Very good formability. Standard HPA for automotive and semiconductor.

Fabrication Properties

Cold forming	Very good
Machining	Not suitable
Electroplating	Good
Hot dip tinning	Good
Laser welding	Good
Resistance welding	Average
Soft soldering	Good

Physical Properties*

Density	8.8	g/cm^3
Electrical	45	% IACS
conductivity@20°C	26	MS/m
Thermal conductivity@20°C	190	W/(m·K)
Specific heat capacity	0.399	J/(g·K)
Modulus of elasticity	130	GPa
Poisson's ratio	0.33	
Coefficient of thermal expansion**	17.6	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	A50 %	HV
Y550	620–740	90–107	≥ 550	≥ 14	180–220
R580	580–660	84–95	≥ 500	≥ 10	180–210
R655	655–785	95–114	≥ 585	≥ 7	190–240
R690	690–810	100–117	≥ 655	≥ 5	210–250
R760	760–850	110–123	≥ 720	≥ 2	220–270
R800	800–880	116–128	≥ 780	≥ 1	250–290
R607	607–726	88–106	≥ 550	≥ 6	180–220
TM00*	620–760	90–110	≥ 450	≥ 10	
TM02*	655–825	95–120	≥ 585	≥ 7	
TM03*	690–860	100–125	≥ 655	≥ 5	

*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
Y550	0	0	0.5	0.5
R580	0.5	0.5	1	1
R655	0.5	0.5	1.5	2
R690	1	1	2	2
R760	1.5	1.5	2.5	2.5
R800	2	3	2	3.5
R607	0.5	3	1	5

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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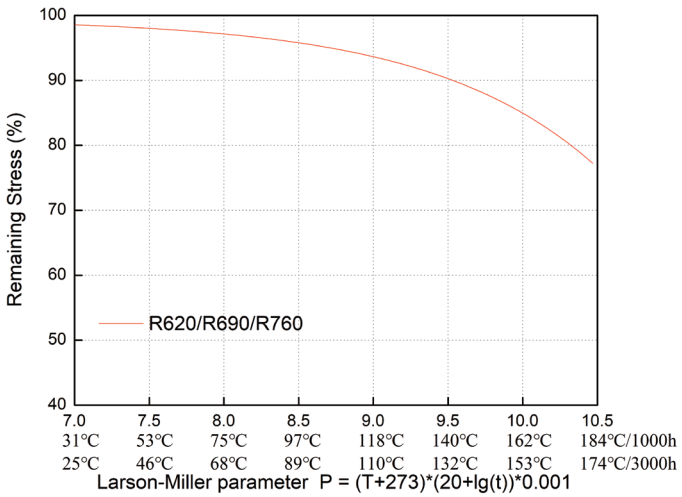
Thermal Stress Relaxation



P=Larson Miller parameter
T=temperature(℃)
t=time(h)
Example:
Application conditions: Maintain for 1000 hours at 150°C.
Formula substitution: T＝150, t＝1000
P=(150+273)×(20+lg (1000))×0.001=9.729
Graph reference: When P＝9.729, the stress retention rate is approximately 88%.
Conclusion: Under the conditions of 150°C /1000h, the remaining stress of this material is close to 88%.

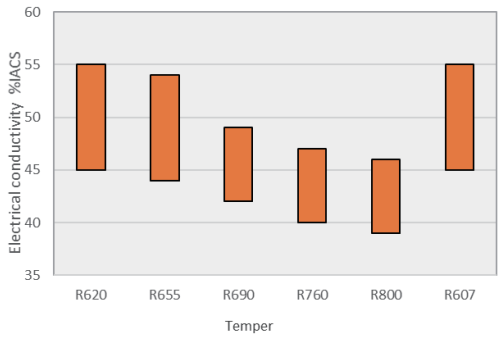
Packaging

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.
Hot-dip tinned and electroplated 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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