boway 18090

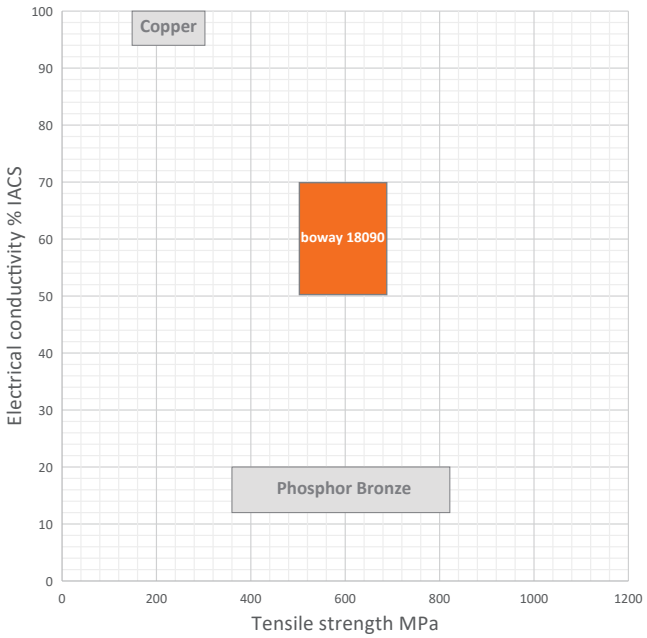
Material Designation

Boway Designation	boway 18090
UNS	C18090
EN	CuNiSnCrTi
JIS	-
GB(China)	-

Chemical Composition*

Ni	0.3–1.2	%
Sn	0.5–1.2	%
Cr	0.2–1.0	%
Ti	0.1–0.8	%
Cu	Rem.	

* Nominal composition



Application Target

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

Characteristics

It has excellent bending performance, excellent cold and hot forming performance, high strength and good corrosion resistance; Excellent electrical and thermal conductivity, and good welding, soldering and brazing properties.

Fabrication Properties

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

Physical Properties*

Density	8.82	g/cm^3
Electrical	60	% IACS
conductivity@20°C	35	MS/m
Thermal conductivity@20°C	240	W/(m·K)
Specific heat capacity	0.385	J/(g·K)
Modulus of elasticity	133	GPa
Poisson's ratio	0.34	
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

Temper	Tensile strength		Yield strength	Elongation	Hardness*
	MPa	ksi	MPa	A50 %	HV
R450	450–540	65–78	≥ 350	≥ 6	≥ 130
R540	540–620	78–90	≥ 450	≥ 3	≥ 160
R620	620–700	90–102	≥ 520	≥ 1	≥ 180

*For reference only

Bendability

Bending thickness ≤ 0.5 mm; Bending width: 10 mm

Temper	90° R/T	
	Good Way	Bad Way
R450	0.5	0.5
R540	1.0	2.0
R620	3.0	6.0

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

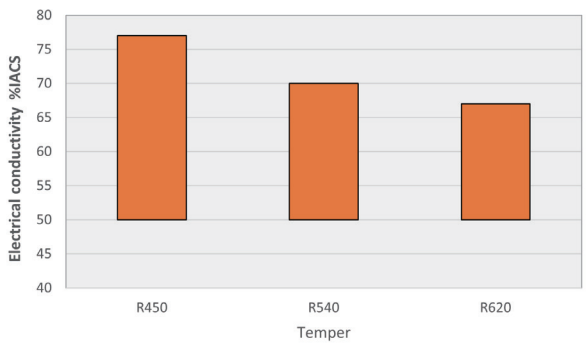
Packaging

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 0.1–0.3 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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