

boway 42300

Material Designation

Boway Designation	boway 42300
UNS	C42300
EN	CuZn10Sn1Ni1Si
JIS	-
GB(China)	-

Chemical Composition*

Cu	89	%
Sn	1	%
Ni	1	%
Si	0.2	%
Zn	Rem.	

* Nominal composition

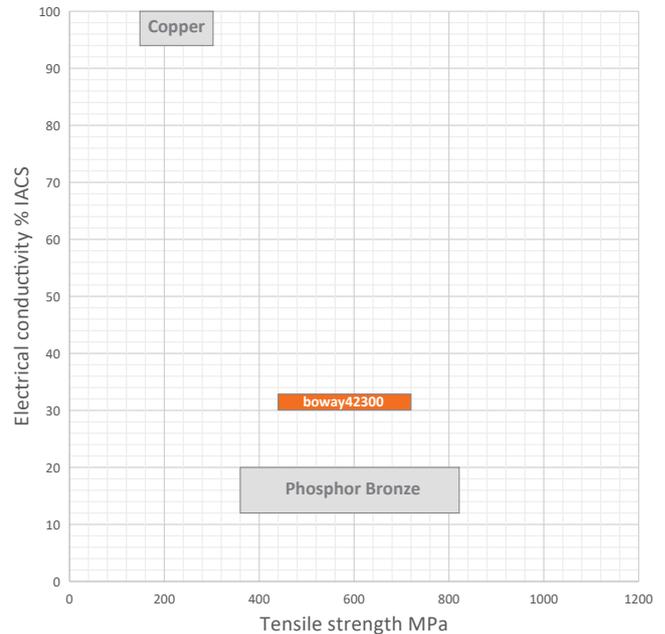
Application Target

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

Superior performance alternative for phosphor bronze.

Fabrication Properties

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



Characteristics

Low metal cost alternative to CuSn4 and CuSn6. Excellent formability and high strength combined with higher electrical conductivity and improved stress relaxation performance VS. Bronze. Not sensitive to stress corrosion cracking. Recycling friendly for tinned scraps.

Physical Properties*

Density	8.88	g/cm ³
Electrical conductivity@20°C	32	% IACS
Thermal conductivity@20°C	18	MS/m
Specific heat capacity	125	W/(m·K)
Modulus of elasticity	0.43	J/(g·K)
Poisson's ratio	120	GPa
Coefficient of thermal expansion**	0.33	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
R440(1/2H)	440–540	64–79	≥ 420	≥ 8	140–170
R520(3/4H)	520–620	76–90	≥ 500	≥ 6	150–190
R560(H)	560–660	82–96	≥ 550	≥ 3	170–210
R620(EH)	620–720	90–105	≥ 590	≥ 1	190–220

*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
R440(1/2H)	0	0	0	1
R520(3/4H)	0	0.5	0.5	1.5
R560(H)	0.5	1.5	1.5	2.5
R620(EH)	1	2	2	5

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

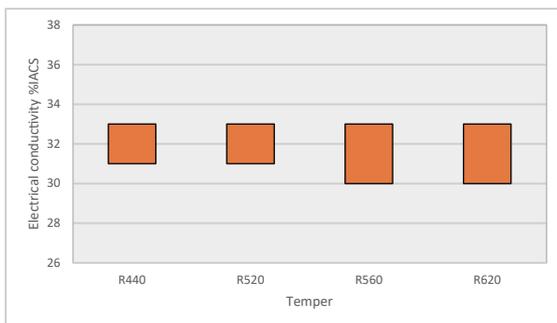
Packaging

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 0.1–2.0 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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