boway 19025

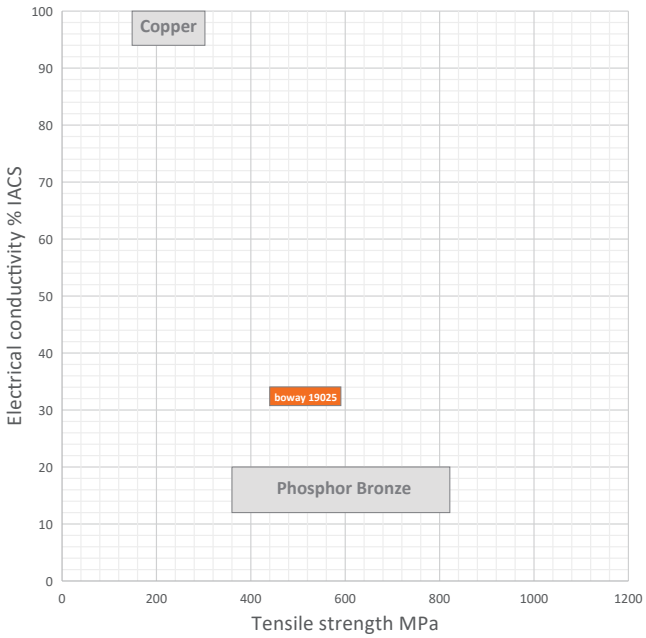
Material Designation

Boway Designation	boway 19025
UNS	C19025
EN	CuNi1Sn1P
JIS	-
GB(China)	-

Chemical Composition*

Cu	Rem.	
Ni	1	%
Sn	0.9	%
P	0.05	%

* Nominal composition



Application Target

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

Well suited for USB Type-C, particularly for 5G vapor chamber, relay spring and others.

Characteristics

Superb combination of high conductivity and relatively high strength. Excellent stress relaxation resistance and bending performance. Good corrosion resistance.

Fabrication Properties

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

Physical Properties*

Density	8.9	g/cm^3
Electrical conductivity@20°C	40	% IACS
	23	MS/m
Thermal conductivity@20°C	161	W/(m·K)
Specific heat capacity	0.377	J/(g·K)
Modulus of elasticity	130	GPa
Poisson's ratio	0.33	
Coefficient of thermal expansion**	17	$10^{-6}/K$

* 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(HR02)	440–520	64–75	≥ 400	≥ 7	135–170
R500(HR04)	500–570	73–82	≥ 470	≥ 5	155–180
R540(HR06)	540–590	78–85	≥ 510	≥ 4	160–195

*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(HR02)	0	0	-	-
R500(HR04)	0	0	-	-
R540(HR06)	0.5	1.0	-	-

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

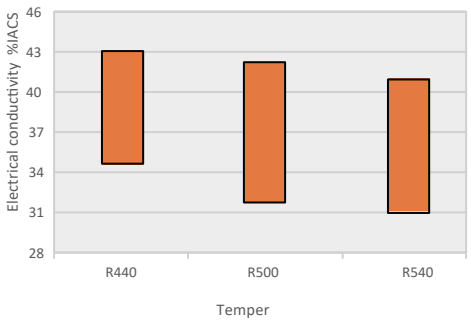
Packaging

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 0.08–3.0 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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