

boway 70318

Material Designation

Boway designation	boway 70318
UNS	C70318
EN	CuNi3CoSi
JIS	--
GB(China)	--

Chemical Composition*

Ni	3	%
Co	0.9	%
Si	0.9	%
Cu	Rem.	
Other	≤0.5	%

*Nominal composition

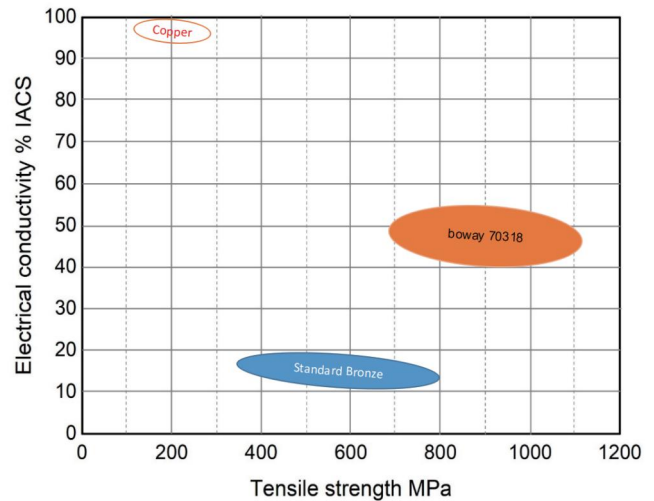
Application Target

Signal Connector	Very suitable
Power Connector	Suitable
Miniaturized Connector	Suitable
Switch / Relay	Very suitable
Semiconductor	Not recommend

Well suited for BTB-Connectors, particularly for USB Type-C, relay springs, high speed connectors and others

Fabrication Properties

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



Characteristics

Very high strength combined with superb forming properties, medium to high conductivity. Very good stress relaxation resistance. Not sensitive against stress corrosion cracking.

Physical Properties*

Density	8.82	g/cm ³
Electrical conductivity @ 20°C	50	% IACS
	29	MS/m
Thermal conductivity @20°C	190	W/(m·K)
Specific heat capacity	0.38	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

boway 70318

Mechanical Properties

Temper	Tensile strength		Yield strength	Hardness*	Elongation
	MPa	ksi			
R690 (TM02)	690-830	100-120	≥680	≥200	≥6
R770 (TM04)	770-900	110-130	≥750	≥220	≥4
R840 (TM06)	840-970	122-140	≥810	≥240	≥1
R920 (TM08)	920-1060	133-154	≥880	≥260	≥1
R980 (TM10)	980-1120	142-163	≥940	≥280	≥1

*For reference only

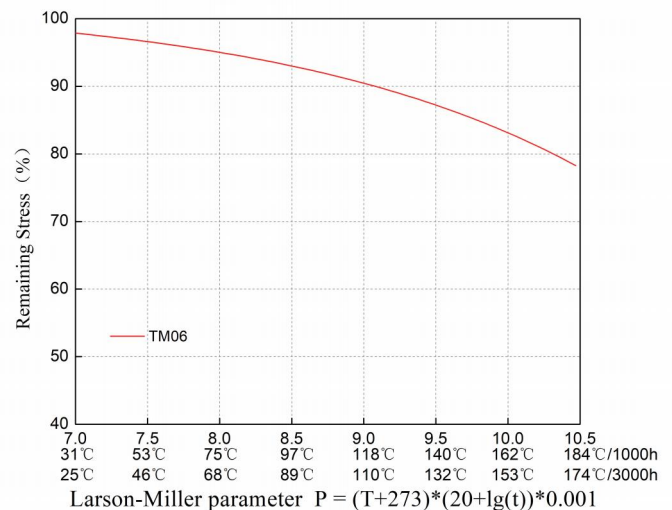
Bendability Bending thickness: 0.05 – 0.35 mm, bending width: 1 mm

Temper	90° R/T		180° R/T	
	Good Way	Bad Way	Good Way	Bad Way
R690 (TM02)	0	0	—	—
R770 (TM04)	0.5	0.5	—	—
R840 (TM06)	1.0	1.0	—	—
R920 (TM08)	1.0	1.0	—	—
R980 (TM10)	3.0	3.0	—	—

90° bend test According to EN ISO 7438, 180° bend test acc. to ASTM B820, shown values might show orange-peel, however no crack

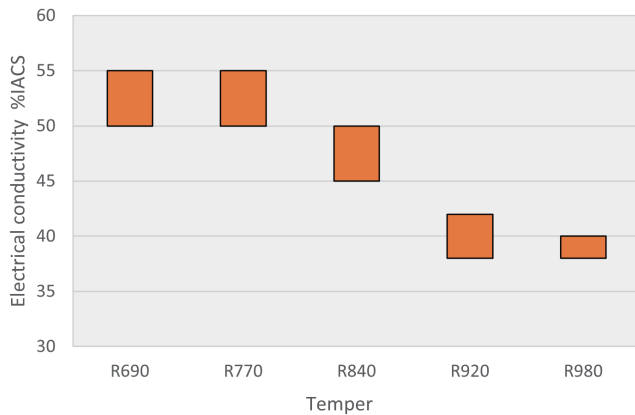
Thermal Stress Relaxation

The stress retention rate of boway70318 alloy at 150 °C / 1000h is close to 85%, which ensures the contact reliability of the connector in long-term & high-temperature service.

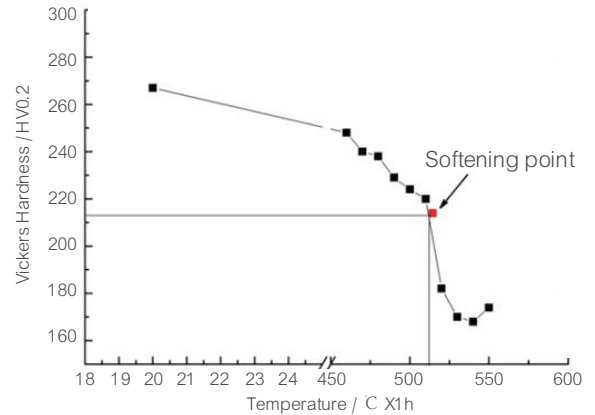


boway 70318

Electrical Conductivity



Softening Resistance



The values were measured according to the standard GB/T 33370-2016.

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. For solid solution fine grain materials fatigue strength might increase up to 1/2 of tensile strength.

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 0.05 - 0.35 mm, other gauges on request
 Strip width from 8.5 mm
 Electroplated and Hot-dip tinned strip available