

## 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

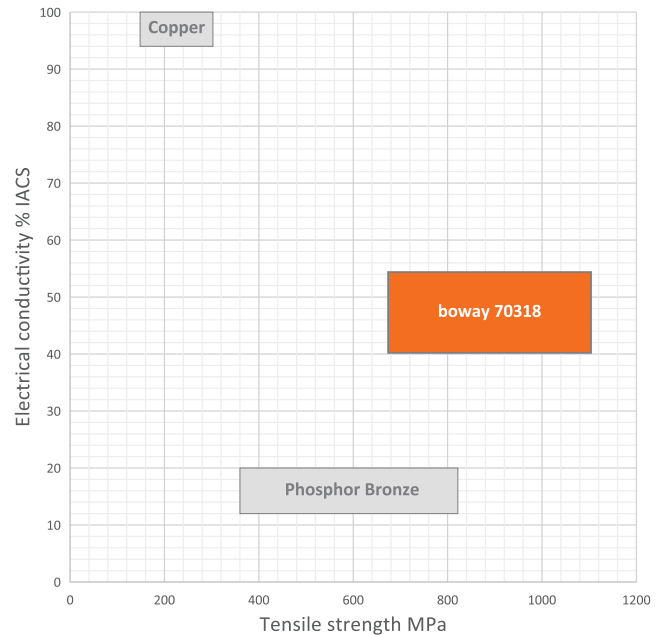
### Application Target

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

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 to stress corrosion cracking.

### Physical Properties\*

Density	8.82	g/cm <sup>3</sup>
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 <sup>-6</sup> /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			
R600(TR04)	≥ 600	≥ 87	540-680	≥ 4	≥ 190
R690(TM02)	690-830	100-120	≥ 680	≥ 6	≥ 200
R770(TM04)	770-900	110-130	≥ 750	≥ 4	≥ 220
R840(TM06)	840-970	122-140	≥ 810	≥ 1	≥ 240
R920(TM08)	920-1060	133-154	≥ 880	≥ 1	≥ 260
R980(TM10)	980-1120	142-163	≥ 940	≥ 1	≥ 280

\*For reference only

## Bendability

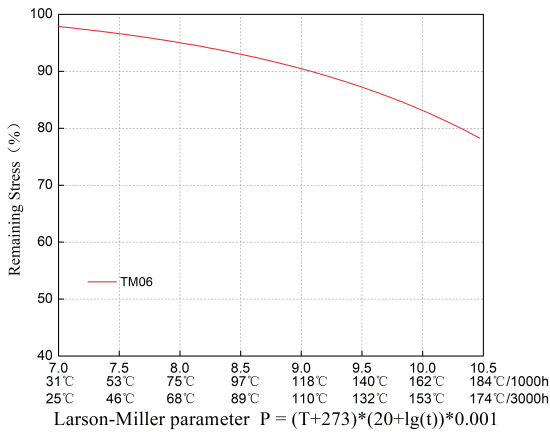
Bending thickness: ≤ 0.3 mm, R600-R840 bending width: 2.0mm; R920-R980 bending width: 1.0mm

Temper	90° R/T		180° R/T	
	Good Way	Bad Way	Good Way	Bad Way
R600(TR04)	0	0	-	-
R690(TM02)	0	0	-	-
R770(TM04)	0.5	0.5	-	-
R840(TM06)	1	1	-	-
R920(TM08)	1	1	-	-
R980(TM10)	2	2	-	-

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(°C)

t=time(h)

Example:

Application conditions: Maintain for 1000 hours at 150°C.

Formula substitution:  $T = 150$ ,  $t = 1000$

$$P = (150 + 273) \times (20 + \lg(1000)) \times 0.001 = 9.729$$

Graph reference: When  $P = 9.729$ , the stress retention rate is approximately 85%.

Conclusion: Under the conditions of 150°C / 1000h, the remaining stress of this material is close to 85%.

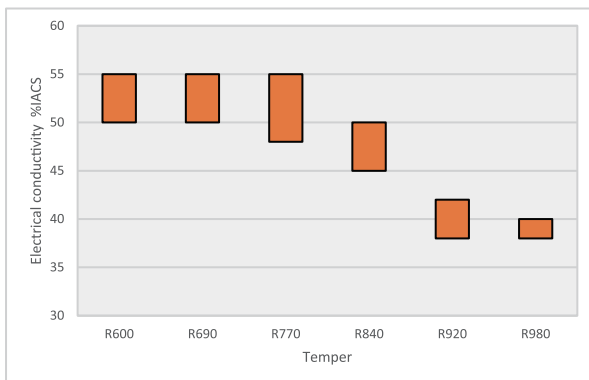
### Packaging

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 0.05–0.3 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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