# boway 70318

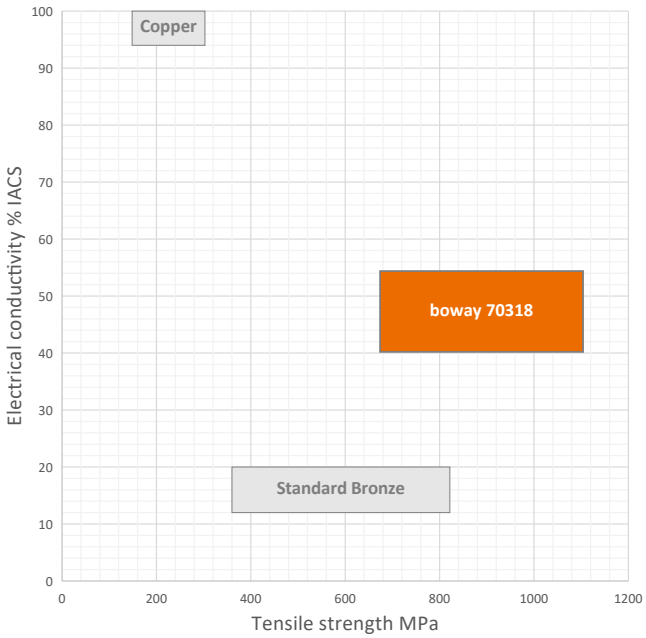
## Material Designation

| | |
|---|---|
| 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 recommended |

Well suited for BTB connectors, particularly for USB type-c, relay springs, high speed connectors and others

## Characteristics

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

## Fabrication Properties

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

## 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

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## Mechanical Properties

| Temper | Tensile strength | | Yield strength | Hardness* | Elongation |
|---|---|---|---|---|---|
| | MPa | ksi | MPa | HV | A50 % |
| 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

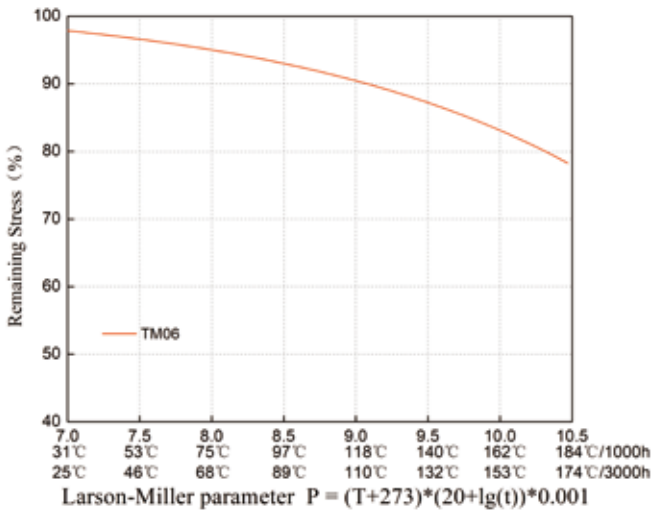
Bending thickness: 0.03–0.30 mm; R690-R840 bending width: 10mm; R920-R980 bending width: 1.0mm.

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

## Thermal Stress Relaxation

The stress relaxation rate of boway 70318 alloy at 150 ℃/1000h is close to 85%, which ensures the contact reliability of the connectors in long-term & high-temperature service.




P= Larson Miller index; T= Celsius temperature; t= time

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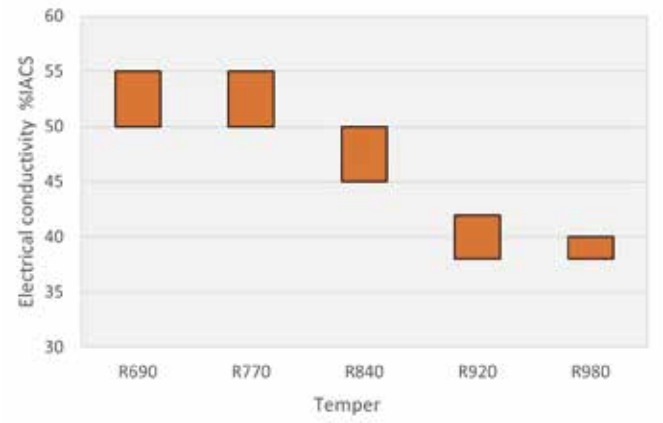
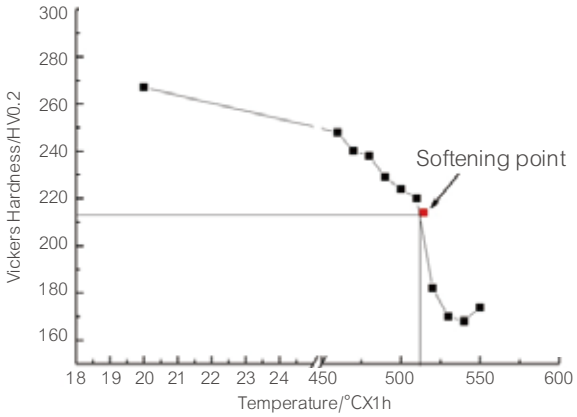
## Electrical Conductivity




## 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.

## 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: 0.03-0.3 mm, provided according to customer requirements. Other thickness specifications can be discussed.
Strip width from 8.5 mm.
Electroplated and hot-dip tinned strip available.

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