

B30414 王琴理
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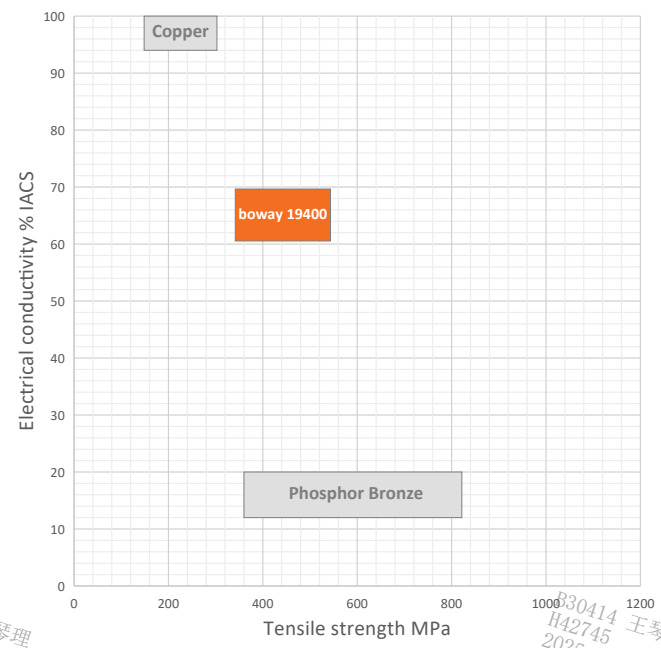
Material Designation

Boway Designation	boway 19400
UNS	C19400
EN	CuFe2P
JIS	C1940
GB(China)	TFe2.5

Chemical Composition*

Fe	2.3	%
P	0.03	%
Cu	Rem.	

* Nominal composition



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Application Target

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

Ideal for semiconductor

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Characteristics

High strength and good electrical conductivity with excellent softening resistance performance and good corrosion resistance. Standard material for semiconductor applications, stamping as well as etching quality available.

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Fabrication Properties

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

Physical Properties*

Density	8.8	g/cm ³
Electrical conductivity@20°C	66	% IACS
conductivity@20°C	38	MS/m
Thermal conductivity@20°C	280	W/(m·K)
Specific heat capacity	0.385	J/(g·K)
Modulus of elasticity	121	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 (Values Underlined Are For Reference Only)

Temper	Tensile strength		Yield strength	Elongation	Hardness*
	MPa	ksi	MPa	A50 %	HV
R365(1/2H)	365-435	53-63	≥ 250	≥ 6	<u>110-140</u>
R415(H)	415-485	60-70	≥ 365	≥ 3	<u>125-145</u>
R460(EH)	460-525	67-77	≥ 440	≥ 2	<u>130-155</u>
R480(SH)	485-545	70-79	≥ 460	≥ 2	<u>135-160</u>
R530(ESH)	≥ 530	≥ 77	≥ 500	≥ 1	≥ <u>150</u>
R550(SSH)	≥ 550	≥ 80	≥ 520	≥ 1	≥ <u>155</u>
Annealed*	275-435	40-63	≥ 100	10	
Light Anneal	310-380	45-55	<u>160</u>	<u>26</u>	
H02*	365-435	53-63	≥ 250	≥ 6	
H04*	415-485	60-70	≥ 365	≥ 3	
H06*	460-505	67-73	≥ 440	≥ 2	
H08*	485-525	70-76	≥ 460	≥ 2	
H10*	505-550	73-80	≥ 485	≥ 1	

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According to ASTM B152

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
R365	0	0	1	1
R415	0.5	0.5	1.5	1.5
R460	0.5	1	1.5	1.5
R480	0.8	1.2	2.0	2.0
R530	1.5	2	-	-
R550	-	-	-	-

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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boway constantly create value for customers

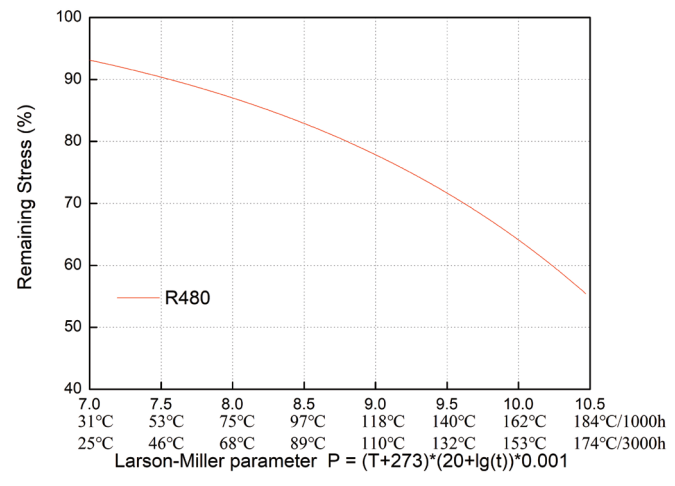
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Thermal Stress Relaxation



P=Larson Miller parameter

T=temperature(°C)

t=time(h)

Example:

Application conditions: Maintain for 1000 hours at 105°C.

Formula substitution: $T = 105, t = 1000$

$$P = (105 + 273) \times (20 + \lg(1000)) \times 0.001 = 8.694$$

Graph reference: When P = 8.694, the stress retention rate is approximately 80%.

Conclusion: Under the conditions of 150°C / 1000h, the remaining stress of this material is close to 80%.

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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.

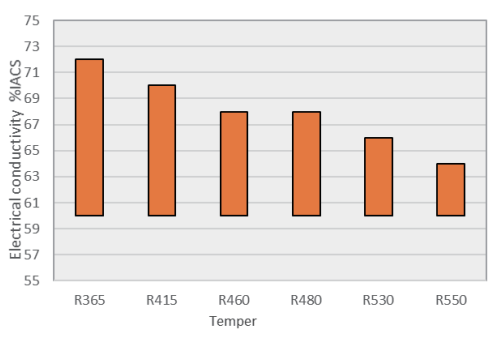
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Dimensions Available

- Strip thickness 0.08–3.0 mm, other gauges on request.
- Strip width from 8.5 mm.
- Hot-dip tinned and electroplated strip available.

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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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