

## Products Information

### Features

- Excellent balance of yield strength and electrical conductivity
- Equivalent or higher stress relaxation resistance to Corson alloy
- Excellent bending formability and blanking workability
- Reasonable cost-effectiveness
  - Expensive metals such as tin and nickel are not contained
  - 5% lower specific gravity than pure copper
- Suitable substitute for phosphor bronze and Corson alloy

### Chemical composition

(mass%)

Mg	Cu
1.6	Rem.*

\* Including inevitable impurities and trace additive elements

### Physical properties

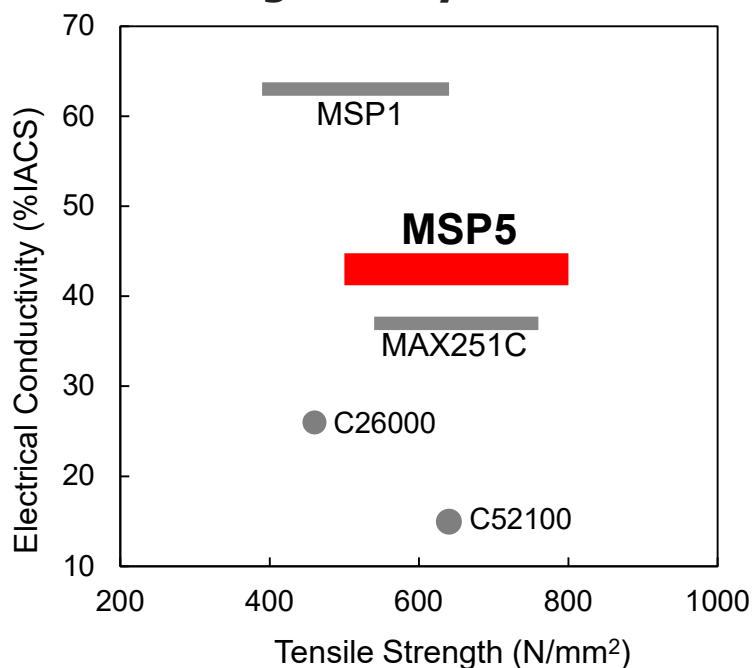
Property	Representative Value
Specific Gravity (293 K)	8.5
Coefficient of Thermal Expansion (/K : 293~573 K)	$18.2 \times 10^{-6}$
Thermal Conductivity (W/(m·K) : 293 K)	174
Electrical Conductivity (%IACS : 293 K)	43
Modulus of Elasticity (kN/mm <sup>2</sup> : 293 K)	115
Poisson's ratio (293 K)	0.35

### Mechanical properties

	Temper(L.D.)				Typical values(L.D./T.D.)			
	1/2H	H	EH	SH	1/2H t:0.64mm	H t:0.15mm	EH t:0.15mm	SH t:0.15mm
Tensile Strength (N/mm <sup>2</sup> )	485~585	530~630	575~675	620~720	543/565	593/645	625/695	677/780
0.2% Yield Strength (N/mm <sup>2</sup> )	—	—	—	—	507/512	543/592	585/647	636/735
Elongation (%)	5Min.	4Min.	3Min.	3Min.	11/16	9/14	7/12	7/10
Vickers Hardness* (HV)	(145~205)	(160~220)	(175~235)	(190~250)	178	193	203	219

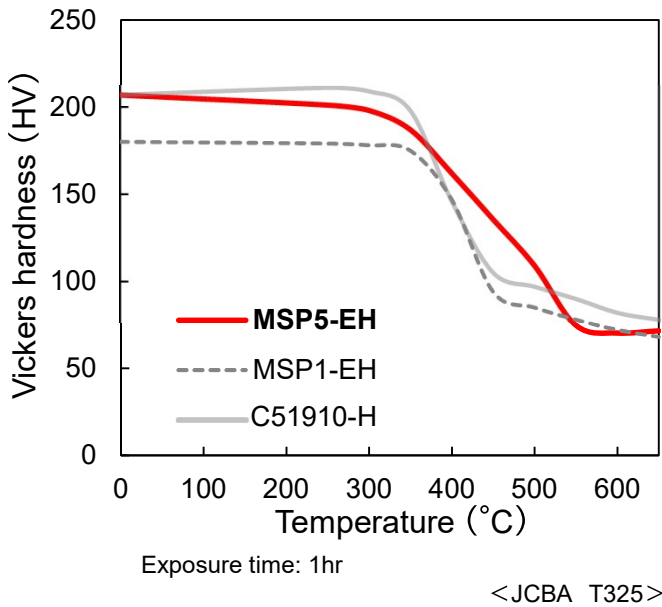
\* Reference values

### Positioning of Alloy

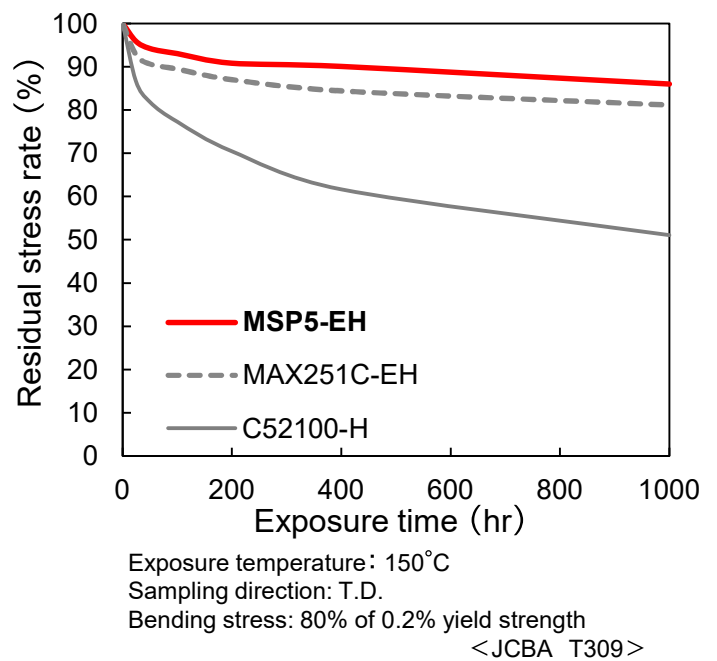


### Products Information

#### ➤ Heat resistance



#### ➤ Stress relaxation resistance



#### ➤ Bendability

90° W-Bend, Specimen width=10mm, Load=9.8kN <JCBA T307>

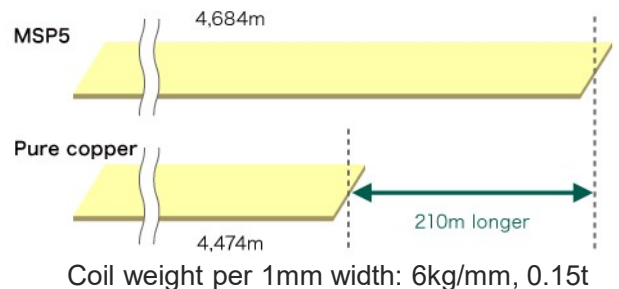
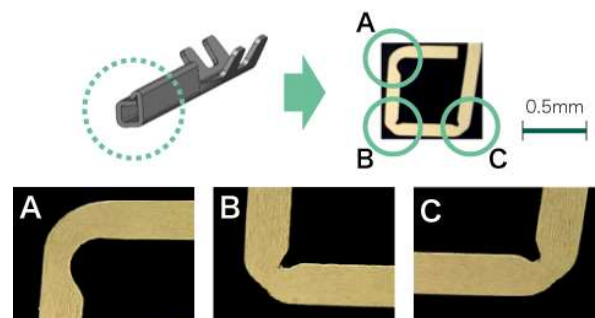
Temper	Sampling direction (to the L.D.)	Bending radius (mm) R							R/t
		0.0	0.1	0.15	0.2	0.25	0.4	0.6	
H t:0.15mm	0°: Good Way	△	△	△	△	△	○	○	0.0
	90°: Bad Way	▲	△	△	△	△	△	△	0.7
EH t:0.15mm	0°: Good Way	△	△	△	△	△	○	○	0.0
	90°: Bad Way	▲	▲	△	△	△	△	△	1.0

Criteria of evaluation: ◎Good(Acceptable), ○ Minor rough surface(Acceptable), △Rough surface(Acceptable), ▲Minor crack(Unacceptable), ×Major crack(Unacceptable)

#### Cross-sectional observation

The cross section of automotive 0.50 terminal is shown on the right.

Due to its excellent bendability, MSP5 is suitable for small terminal used in automobile, consumer products and other industrial fields.



#### ➤ Low specific gravity

The specific gravity of MSP5 is around 5% smaller than that of pure copper and Corson alloy.

Comparing with the same weight, the length of MSP5 is 5% longer than pure copper, which makes it possible to produce more terminals accordingly.