

High-Performance Copper Alloy for Connectors

C7025

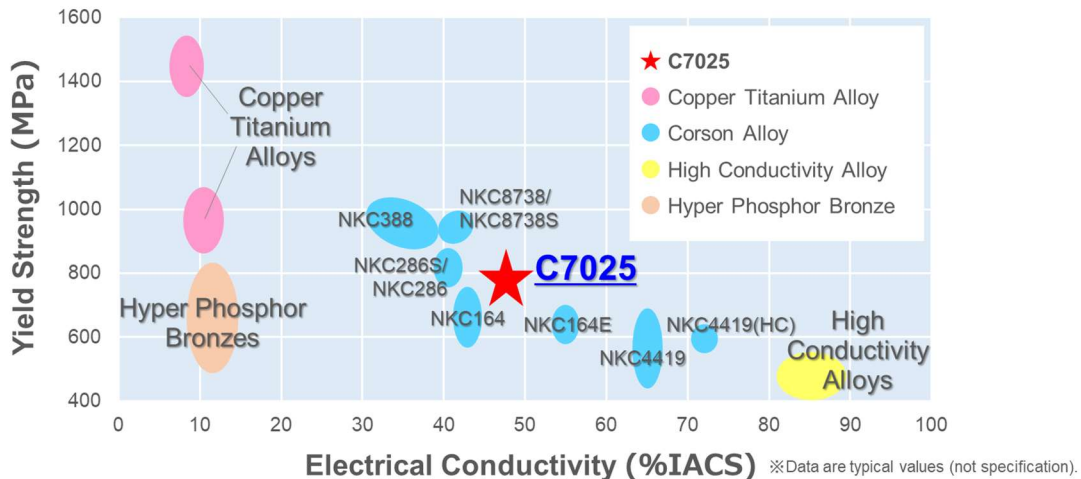
UNS C70250

※Data in this sheet are typical values (not specification).

Features

- C7025 is a precipitation-hardened Corson alloy (Cu-Ni-Si alloy) that is widely used around the world for connector terminals. JX Advanced Metals provides C7025 to customers as one of their multiple sources.
- Among the various copper alloys, C7025 has an excellent balance of strength, electrical conductivity, and bend formability, making it suitable for small terminals that carry large currents.
- C7025 has excellent stress relaxation resistance and provides high contact reliability at high temperatures.
- TM04S is an original JX quality material with highly improved strength, electrical conductivity, and bend formability. It can accommodate the miniaturization and increased current carrying capacity that have accompanied the improved performance of electronic devices in recent years.

Our Copper Alloy Lineup



Material Properties

1. Chemical Composition

Element	Cu	Ni	Si	Mg
Nominal Value (wt%)	Bal.	3.0	0.65	0.15

2. Physical Properties

	TM02, TM03 TM04	TM04S
Electrical Conductivity (%IACS) (@20°C)	45	50
Specific Resistivity (nΩ·m) (@20°C)	38	34
Thermal Conductivity (W/(m·K))	180	200
Thermal Expansion Coefficient (×10 ⁻⁶ /K) (@20~200°C)	17.6	17.6
Modulus of Elasticity (GPa)	131	131
Specific Gravity	8.82	8.82

Material Properties

3. Mechanical Properties

Temper	Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (%)	Hardness (Hv)
TM02	725 (650 - 740)	644 (≥ 585)	13.0 (≥ 10.0)	215 (190 - 240)
TM03	744 (680 - 760)	710 (≥ 655)	9.0 (≥ 5.0)	235 (200 - 250)
TM04	814 (750 - 840)	800 (≥ 740)	3.0 (≥ 1.0)	248 (225 - 275)
TM04S	820 (730 - 850)	800 (≥ 720)	4.0 (≥ 1.0)	246 (215 - 265)

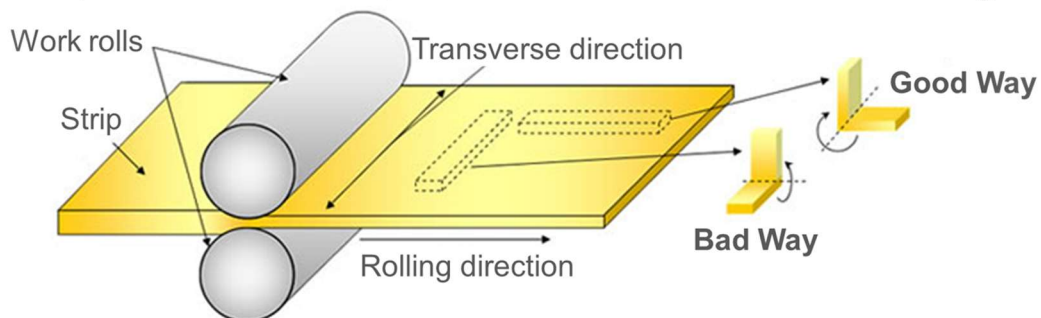
Upper : Typical value, Lower : Standard range

4. W-Shaped 90 degree Bend Formability

Width (mm)	Temper	Thickness (mm)	Minimum Bend Radius / Thickness	
			Good Way	Bad Way
10	TM02	≤ 0.20	1.0	0
	TM03	≤ 0.20	1.0	0.5
	TM04	≤ 0.20	2.0	7.0
	TM04S	≤ 0.08	0	0
0.2	TM03	≤ 0.20	0	0
	TM04S	≤ 0.20	0	0

※In accordance with Japan Copper and Brass Association technical standard (JCBA T307)

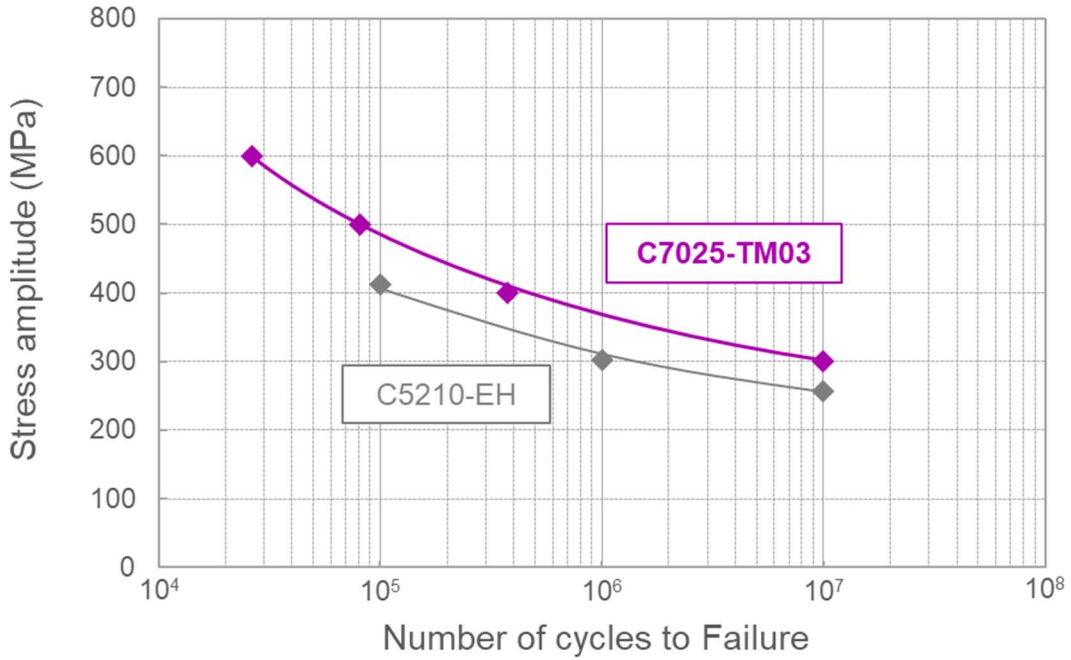
Bend direction from schematic illustration of rolling



Material Properties

5. Fatigue Property (Rolling Direction)

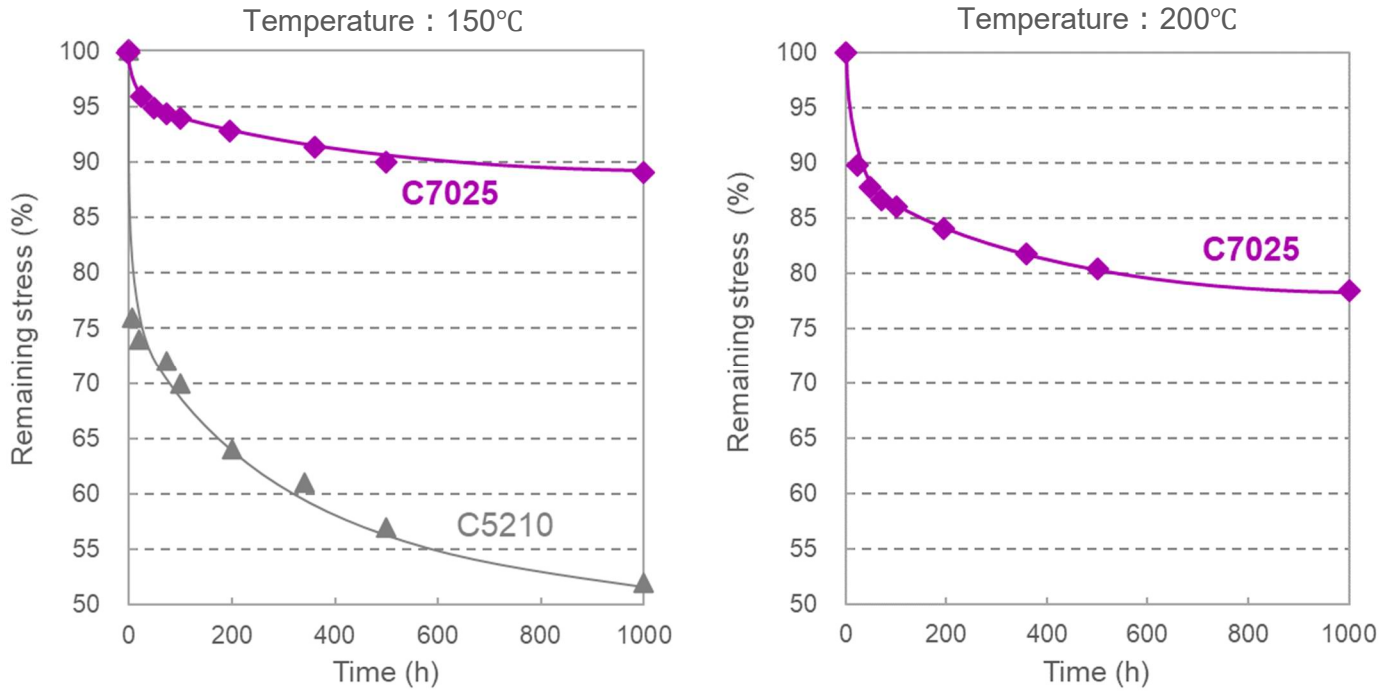
● C7025 has better fatigue properties than phosphor bronze C5210.



※Test method : JIS-Z-2273

6. Thermal Stress Relaxation Resistance

● C7025 has superior stress relaxation resistance.



※Test method : JCBA T309

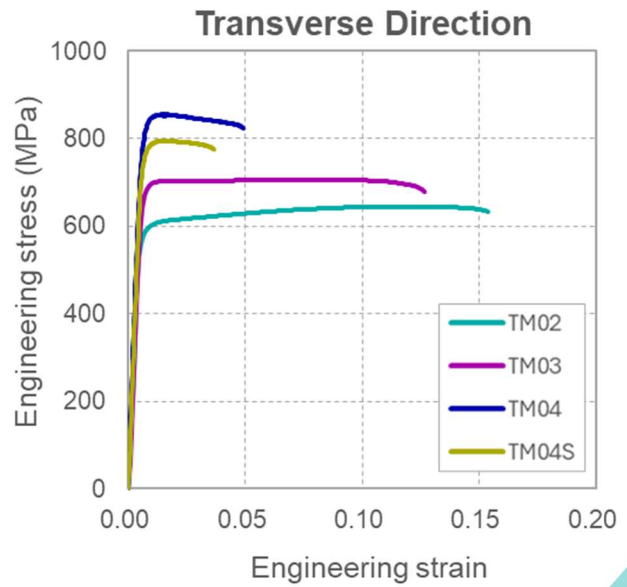
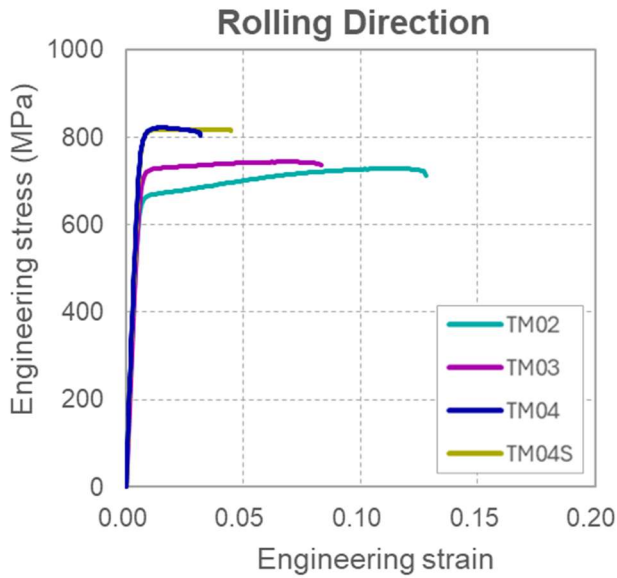
※Applied stress : Yield strength×80%

Material Properties

7. Stress-Strain Curve

- Engineering Stress-Strain Curves for each temper of C7025 can be downloaded from our official website.

Download : https://www.jx-nmm.com/english/products/copper_foil_and_alloy/03corson/excel/C7025_for_connector_S-S_Curve.xlsx



Production Thickness Range

Temper	Thickness Range (mm)
TM02	0.10 ~ 0.64
TM03	0.06 ~ 0.80
TM04	0.10 ~ 0.30
TM04S	0.04 ~ 0.25

- Please contact us for the latest stock status and inquiry of other thicknesses.

Contact Address

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C7025 introduction URL : https://www.jx-nmm.com/english/products/copper_foil_and_alloy/03corson/c7025.html



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