

**Main application**

Connectors, Springs

**Characteristics**

- The most excellent stress relaxation property of all the copper alloys.
- Comparable to beryllium copper alloy in strength and hardness.
- Applied widely to electronic appliances, communication devices, and electric equipment because of its eco-friendliness for its chemical composition.
- No heat treatment required for hardening.

**Chemical Composition**

| Ti      | Cu + Ti |
|---------|---------|
| 2.9-3.5 | ≥ 99.5  |

(wt.%)

**Mechanical Properties**

| Temper | Tensile Strength<br>N/mm <sup>2</sup> | Elongation**<br>% | Hardness<br>HV | Kb<br>Value**<br>N/mm <sup>2</sup> | Yield<br>Strength<br>(0.2%<br>offset)*<br>N/mm <sup>2</sup> | Electrical<br>Conductivity*<br>%IACS | Modulus of<br>Elasticity*<br>kN/mm <sup>2</sup> |
|--------|---------------------------------------|-------------------|----------------|------------------------------------|-------------------------------------------------------------|--------------------------------------|-------------------------------------------------|
| 1/4H   | 735-930                               | 10-30             | 250-300        | ≥ 635                              | 700                                                         | 14                                   | 127                                             |
| 1/2H   | 785-980                               | 8-25              | 270-320        | ≥ 685                              | 760                                                         | 13                                   | 125                                             |
| H      | 835-1030                              | 8-25              | 280-330        | ≥ 735                              | 810                                                         | 12                                   | 122                                             |
| EH     | 885-1080                              | 5-20              | 300-350        | ≥ 785                              | 900                                                         | 12                                   | 117                                             |
| SH     | 930-1130                              | 3-10              | 310-350        | ≥ 885                              | 990                                                         | 9                                    | 108                                             |

1) \*Reference value only. \*\*Reference Value only in less than 0.15mm thickness

2) In each temper, covered thickness range for production is limited.

### Minimum Bending Radius

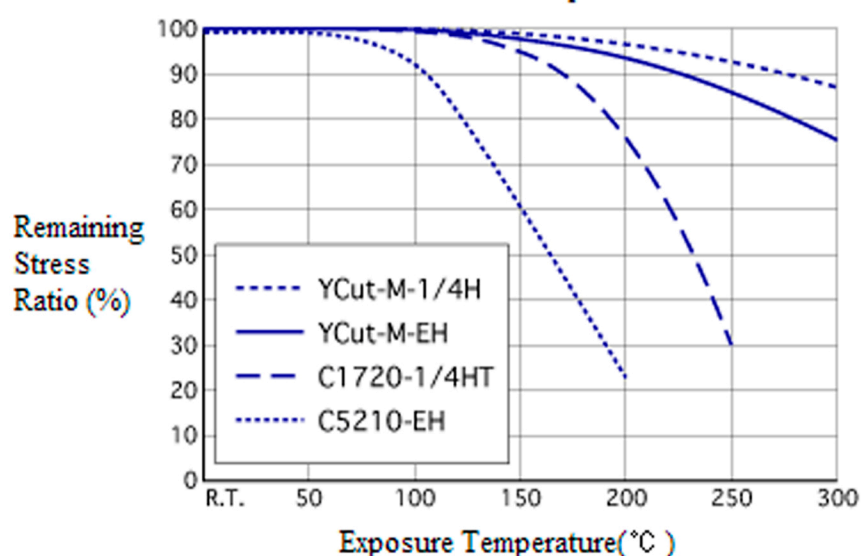
| Temper | 90° W-MBR/t * |     | 180° W-MBR/t ** |     |
|--------|---------------|-----|-----------------|-----|
|        | GW            | BW  | GW              | BW  |
| 1/4H   | 1             | 1.5 | 1.5             | 2   |
| 1/2H   | 1.5           | 2   | 2               | 2.5 |
| H      | 1.5           | 3   | 2               | 3.5 |
| EH     | 2             | 6   | 2.5             | 4.5 |
| SH     | 3             | -   | 4               | -   |

\* By JIS H3130.

\*\* By JIS Z2248 wipe bending method.

### Stress Relaxation

Initial stress :  $K_b \times 0.7$  Heat exposure time : 1000hrs



### Physical Properties

|                                                 |                            |          |
|-------------------------------------------------|----------------------------|----------|
| Density at 20°C                                 | g/cm <sup>3</sup>          | 8.68     |
| Modulus of Elasticity                           | kN/mm <sup>2</sup>         | 117(EH)  |
| Modulus of Rigidity                             | kN/mm <sup>2</sup>         | 47(EH)   |
| Poisson's Ratio                                 | -                          | 0.33     |
| Electrical Resistivity                          | $\mu\Omega \cdot m$        | 0.14(EH) |
| Thermal Conductivity at 20°C                    | W/(m · K)                  | 50(EH)   |
| Coefficient of Thermal Expansion at 20°C -200°C | $\times 10^{-6}/^{\circ}C$ | 17.6     |
| Melting Point Solidus                           | °C                         | 980      |
| Melting Point Liquidus                          | °C                         | 1075     |
| Magnetic Properties                             | Non Magnetic               |          |
| Specific Heat                                   | J/(kg · K)                 | 400      |

\*Standard value only.