

September 27, 2023

To whom it may concern:

JX Metals Corporation

## **Development of New High-Performance Copper Alloy Products:**

### **—Four new products to contribute to the advancement of information communication and mobility—**

JX Metals Corporation (President: Hayashi Yoichi; "the Company") has developed the following new high-performance copper alloy products, by making use of its alloy development know-how and technology accumulated over many years of integrated manufacture including melting and casting, rolling, annealing, and slitting.

#### **1. Copper-Plated High Strength Copper Titanium Foil**

By plating copper titanium foil with copper, we have developed a copper titanium product C1990-GSH(CP) that has increased solder wettability and corrosion resistance while maintaining mechanical/physical characteristics. Using this product customers can increase the reliability of the spring soldering process, thus contributing to greatly improved production efficiency for high-performance electronic parts, such as camera modules.

#### **2. Copper Titanium Alloy with Excellent Electrical Conductivity**

As the performance of today's smartphones continues to improve, there is increasing interest in controlling the heat produced by each module and part. Copper titanium, which is a high-strength copper alloy, is often used as a spring material for internal smartphone parts. Currently, however, improved electrical conductivity is needed in addition to high strength. Using our unique processing technology, the Company has developed a copper titanium with electrical conductivity 1.5 to 2 times higher than conventional products and strength equal to or greater than conventional products. We are conducting verification tests in preparation for bringing the product onto the market.

#### **3. Ultra-thin Corson alloy foil**

As smartphone and other communications devices become lighter and thinner and server capacity increases, internal connectors are becoming even smaller with narrower pitch and currents are increasing. Demand is growing for thinner Corson alloy foil that can be used for this purpose. In light of this, we have added three Corson alloy products with a thickness of 40 $\mu$ m, which is even thinner than conventional products, to our lineup.

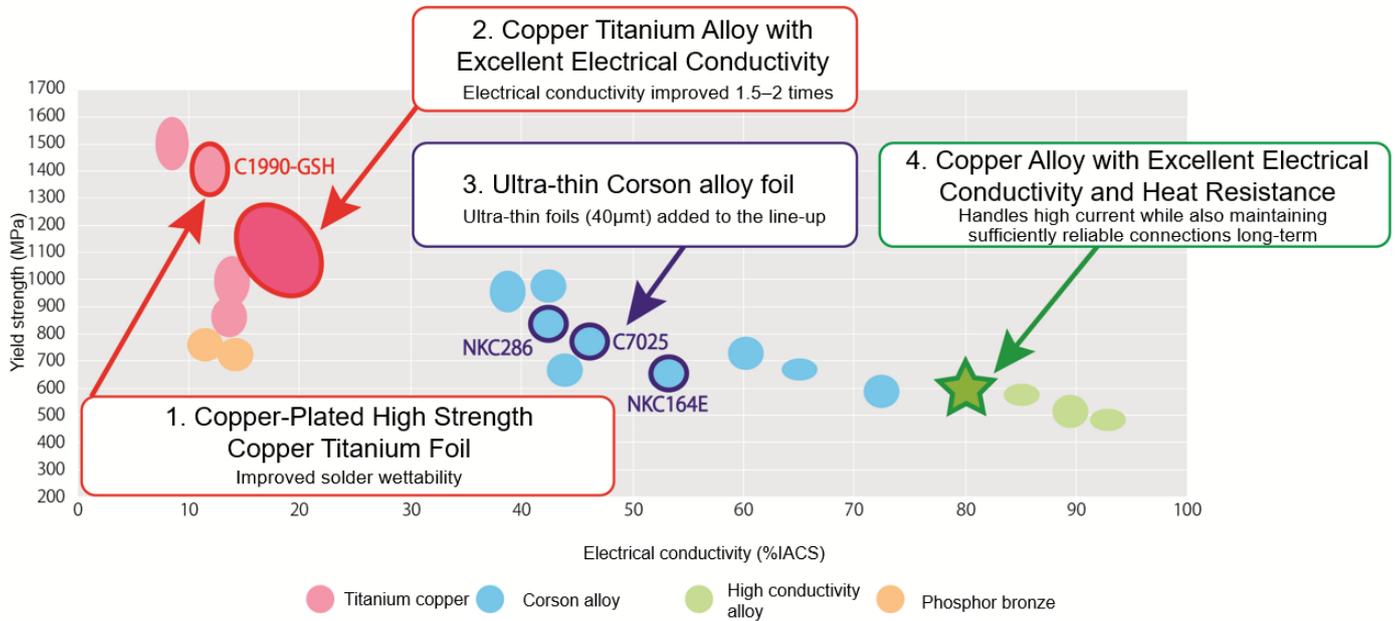
#### **4. Copper alloy with excellent electrical conductivity and Heat Resistance**

As electric vehicles grow in popularity, connectors used for the powertrain system, which controls movements such as acceleration and braking, need to be able to handle higher current than conventional products. Additionally, connectors used for this purpose must ensure sufficiently reliable connections over long periods of time in a high-temperature environment. To respond to these needs, we have developed a copper alloy that has an electrical conductivity of 80% IACS or greater as well as the thermal resistance needed to maintain connector contact force even in high temperature environments.\* We are conducting verification tests in preparation for bringing the product onto the market. (\*See figure 2 in the reference materials)

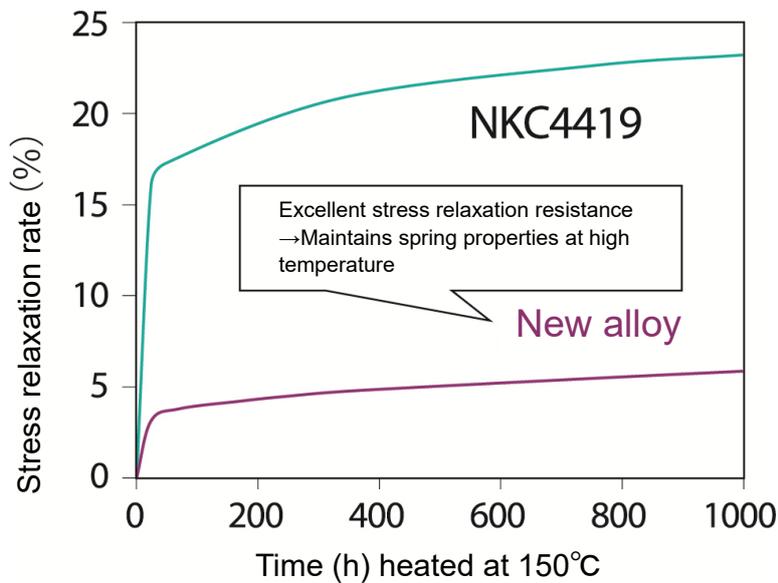
We will introduce these products, as well as various other products that contribute to a sustainable society, at the 3rd Sustainable Material Expo to be held at Makuhari Messe from Wednesday, October 4 to Friday, October 6. As a global leader of advanced materials, the Company will continue to foster the development of society's innovation through timely development and supply of products that meet our customers' needs.

## Reference Materials

**Figure 1: Newly developed products in relation to the Company's high-performance copper alloys**



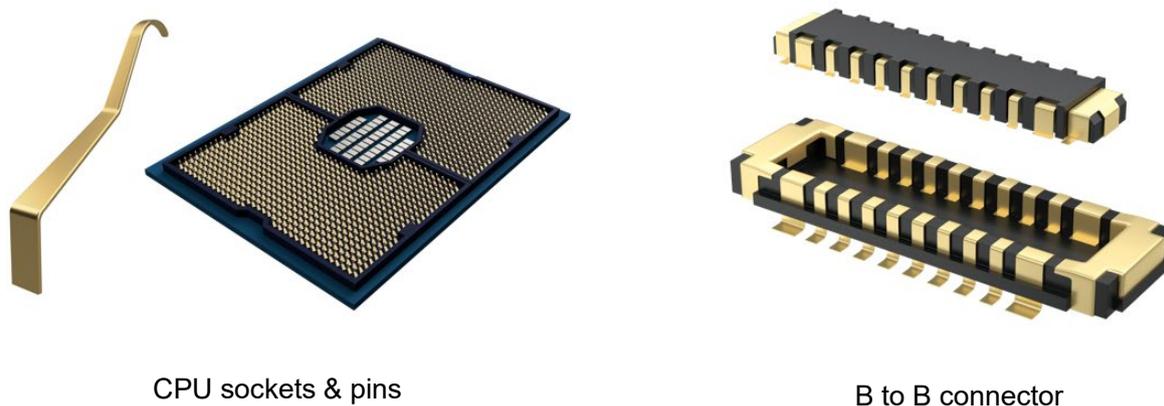
**Figure 2: Heat resistance of copper alloy with excellent electrical conductivity and thermal resistance**



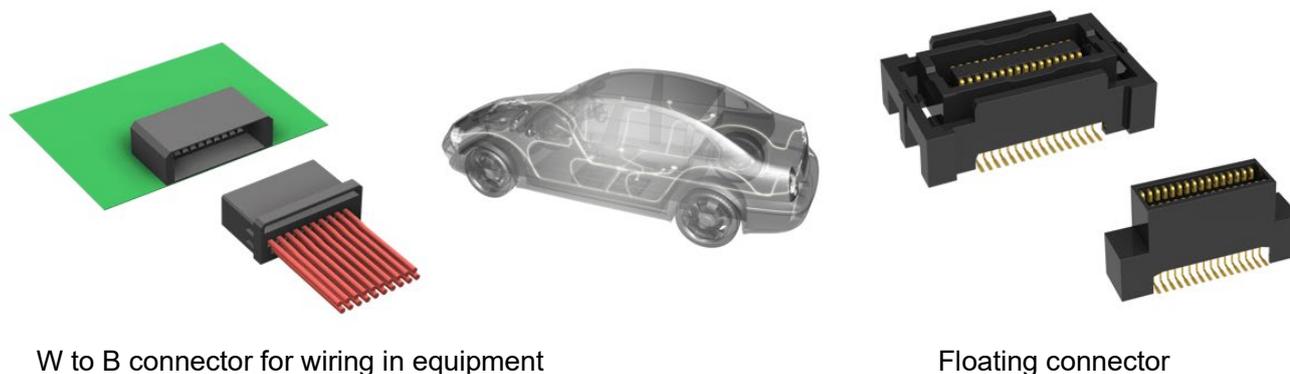
**Figure 3: Application examples for Copper-Plated High Strength Copper Titanium Foil and Copper Titanium Alloy with Excellent Electrical Conductivity**



**Figure 4: Application examples for ultra-thin Corson alloy foil**



**Figure 5: Application example for Copper Alloy with Excellent Electrical Conductivity and Heat Resistance**



**Picture: Example of the Company's high-performance copper alloy foil (copper titanium foil)**

