

United Equipment Accessories, Inc.
Solving Challenges from the Inside Out.™

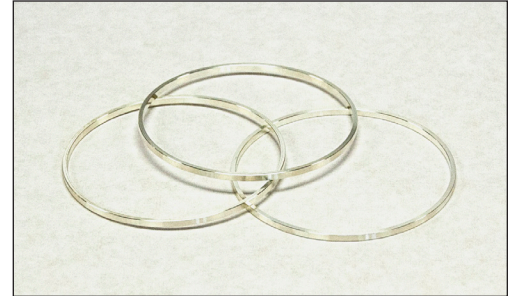


The Advantages of Coin Silver

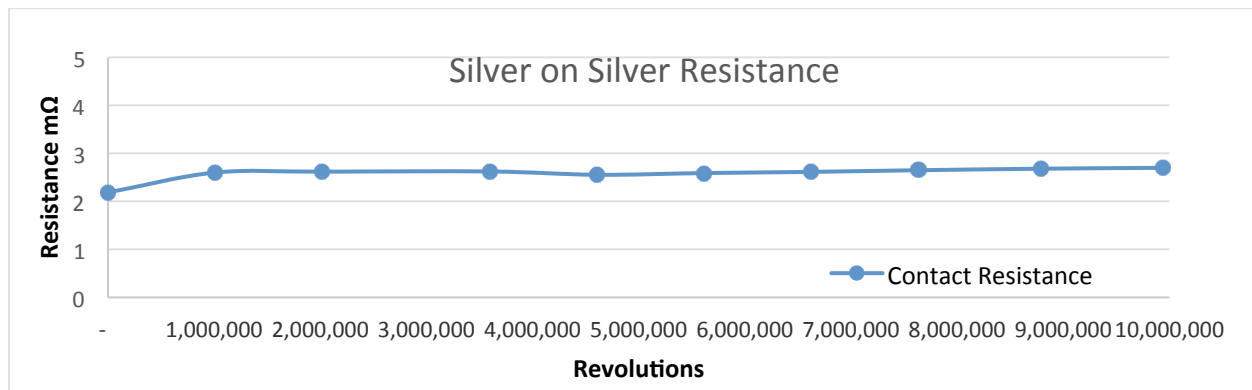
The Advantages of Coin Silver

United Equipment Accessories is continually striving to produce products that exceed the requirements of a given market while also providing the best overall value available. This is why when it comes to high revolution applications which require the transfer of data, such as in wind turbine applications, UEA uses solid coin silver rings.

The major advantage of coin silver is that it is a consistent material throughout. This means that as it wears, its electrical properties will not change throughout its usable life. In addition, silver is a very good conductor. It is highly conductive as an electrical contact and has beneficial corrosive properties. Even when silver oxidizes the thin oxide layer is still very conductive, making silver a very robust contact material even in harsh conditions. Testing done on silver coin rings show impressively low contact resistance and noise readings, even as the materials reach 10s of millions of revolutions.



Example 1: solid coin silver rings



Example 2: uneven plating & wear

In contrast, other offerings in the marketplace include silver, gold, or other precious metal plated rings. The plating process is very delicate and requires considerable expertise to avoid quality issues. Quality issues can include uneven application of the material (*as shown in example 2*) or poor adhesion which will cause the plating to flake off during cycling. Furthermore, no matter how high quality the application of the plated material, it will eventually wear and produce inconsistent electrical results. While plating may be less expensive in the short term, it is quickly negated long term by the cost of re-plating or replacing worn materials which can exceed 5 times the material cost.

An additional option on the market today is gold plating. One potential reason to use gold in a contact is its lack of surface corrosion/oxidation. Gold, however, is nearly 100 times more expensive than silver, yet is comparable in performance. Thin gold plating is commonly used in stationary contacts where high performance is required, but that level of thinking shouldn't be transferred to rotary contacts. When thousands of miles of sliding interference are required, the dynamics of the contact completely changes. Silver ends up being the best value for the contact with virtually no loss of performance. UEA has over 13,000 slip rings in the field using silver contacts successfully transmitting Ethernet, CAN bus, PROFIBUS, PROFINET and other protocols.



The Advantages of Coin Silver

Written by: Kyle Riegel, Design Engineer