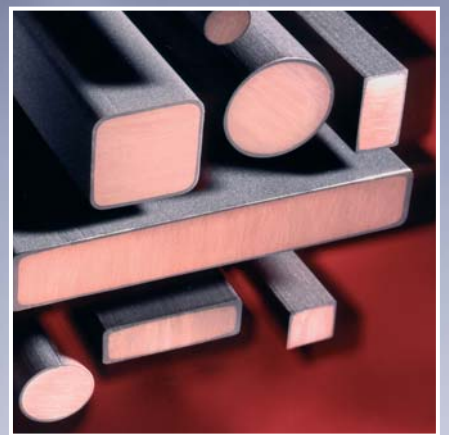


TiCu Clad[®]

Hockey Sticks



- Hockey sticks for Gravitel plants
- Safe power supply in galvanizing lines for steel strips
- Corrosion-protected, titanium-clad copper bars
- Possible repairs for corroded power connections



www.udoplane.com

Dead and Gone.



More corrosion – less conductivity

The correct connection of titanium-clad copper bars to the power supply is a constantly recurring issue. It is widely believed that the poor conductivity titanium should be removed from the contact surfaces – usually by milling or turning:

On the face of it this approach seems logical. The conductivity of copper is $58 \text{ m}/\Omega \times \text{mm}^2$, while that of titanium amounts to as little as $2,2 \text{ m}/\Omega \times \text{mm}^2$.

This means that a copper wire of 1 mm^2 in diameter has a resistance of 1 Ohm. With titanium the same resistance is already reached at a length of 2.2 m.

However, reality looks a little different. For example, environmental influences have to be taken into consideration. When cleaned of

titanium the copper contact surfaces corrode as a result of their exposure to aggressive acids, vapors and condensates in the galvanic treatment.

The copper at the contact surfaces is eaten away by corrosion. The resulting point contacts at the contact surfaces cause the electrical conductivity to deteriorate.



These hockey sticks are so corroded after a short service life that they can no longer be used in this condition.

So far people tried to remedy the situation by applying copper solder and subsequently surface milling the contact surfaces to render them usable again. Yet, after a short time of use these repaired hockey sticks are corroded again and depending on their condition are either repaired again or scrapped.

Just Your Luck!

As a solution to this problem we offer the TiCu Clad® **UP** process.

High quality corrosion protection

The sophisticated and expensive titanium cladding is no longer removed today but rather used as high quality corrosion protection.

Even extremely corroded power connections can today be repaired inexpensively and lastingly with the **UP** process.

Well-known users worldwide are already benefiting from this possibility. We will gladly quote references on request.

Voltage drop and resistance

Text:When the voltage drop is calculated only the cladding thickness of the titanium (0.5 – 2.0 mm) is entered into the equation as the value for length. The result is a very low electrical resistance and hence a very low voltage drop.

With a cladding thickness of 0.5 mm the voltage drop is often only in the mV range.

The costs incurred by the voltage drop are significantly lower than those caused by the corrosion damage on the exposed connections of the current-carrying TiCu Clad® anodes.





Don't Let It Come to That!

In service for too long – now the conventional hockey sticks are beyond repair.

The solution

The sensible and economically viable solution is offered to you by Udo Plante GmbH in the form of the TiCu Clad® **UP** process – either as a repair or directly as high quality TiCu Clad® hockey sticks.



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