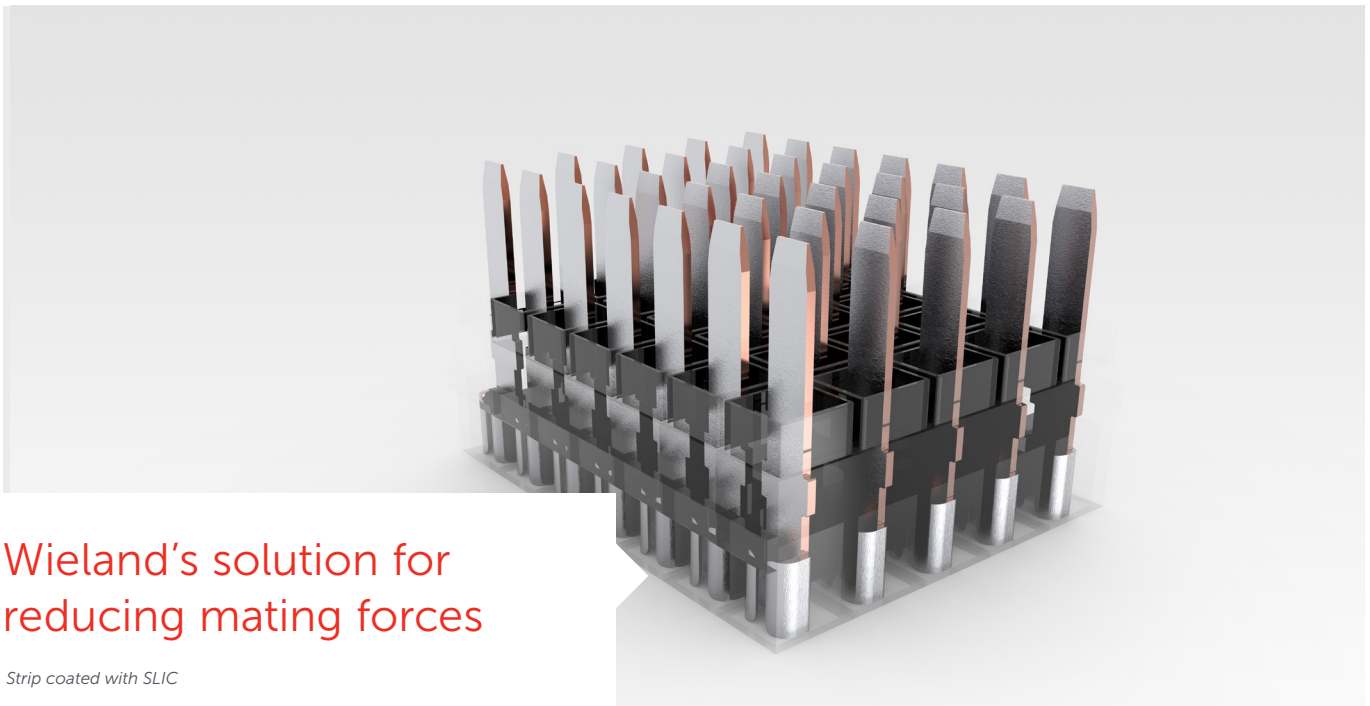


# Low Insertion Force Coating

SLIC (Super Low Insertion Coating): an electroplated tin-silver coating with low friction coefficient for high-density circuit connectors

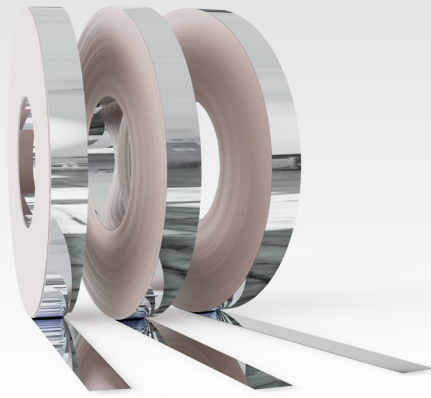


## Wieland's solution for reducing mating forces

*Strip coated with SLIC*

Many automotive connectors are assembled manually by workers on automakers' assembly lines. A high-circuit connector's mating force is the sum of the mating forces needed to connect each single pin to its respective receptacle. For ergonomic reasons, the mating forces must remain below a specified threshold. The goal is to reduce the mating forces to a level below the forces that are typical of interconnects coated with pure tin. This is very challenging from a connector design perspective. Connector designers must model spring forces to achieve a reliable electrical contact while simultaneously ensuring the spring forces (normal forces) are kept at an acceptable level to meet USCAR thresholds.

The solution is a low insertion force coating called "SLIC" (Super Low Insertion Coating). SLIC is a high-performance electroplated coating based on the historically successful Wieland Advanced Tin Barrier coating system. SLIC integrates Ag into the existing barrier system further enhancing the surface to reduce the surface coefficient of friction (COF) below 0.20. SLIC's enhanced surface consists of a reflowed "free Sn" and Sn-Ag matrix of silver-rich particles. These particles lower the COF, resulting in a reduction of the mating forces.



## SLIC Your benefits

- SLIC provides low insertion forces
- At the same time the spring forces may remain at a low level and still achieve a reliable electrical contact.
- SLIC is based on the well established Wieland Advanced Tin Barrier coating system

## Low insertion forces for high-circuit connectors

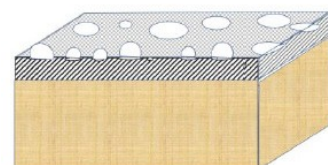
Trends like autonomous driving necessitates simultaneous transfer of an increased number of signals and power. Consequently, the pin count increases and measures must be taken to keep the insertion forces of the complete connector reduced. At the same time the reliability of the electrical contact must be maintained.

Our solution is to use the "low insertion force" coating SLIC on the strip. Subsequently, the stamping of the pins and the assembly of the connector are completed. As a result, every single pin is coated, which contributes to reducing the total insertion force of a high-circuit connector.

The development is based on the well-established Wieland Advanced Tin Barrier coating system. The new coating system called SLIC reduces mating forces and is suitable even for low spring forces.

## The beneficial effect of a few percent of silver

SLIC contains the elements tin and silver that are applied through an electroplated reflow process.  $Ag_3Sn$ -rich particles are created at the surface of SLIC during the tin reflow heat treatment, which reduce the mating force and enable a reliable electric contact.



### Do you want to learn more about Wieland SLIC?

Please visit our website and see our information brochure  
<https://www.wieland.com/en/about/organization/rolled-products/rolled-products-infopage>

### Do you want to test the mating forces of your connector made of Wieland SLIC-coated strip? Please contact:

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