PRESS RELEASE

SurFunction presents fully integrated DLIP production line in live operation at Blechexpo 2025 – complete industrialization achieved and cost-efficiency significantly improved

Saarbrücken, October 20, 2025 – SurFunction GmbH, a leading innovator in laser-based surface functionalization inspired by nature, is showcasing for the first time a fully integrated, operational production line based on its proven Direct Laser Interference Patterning (DLIP) technology – including upstream and downstream stations in real-time operation. This marks a major milestone demonstrating full industrialization and series maturity of the technology.

From stand-alone machine to fully networked production system

Previously, the "E 960 C1" machine proved DLIP's suitability for industrial use. Now, SurFunction presents a fully networked production line that covers all process steps – from material feeding through DLIP functionalization to downstream processing.
In collaboration with NOXON Automation, a specialist in winding and feeding systems, the machine has been enhanced into a high-speed production line capable of up to 20 m/min and flexible integration into existing manufacturing environments – whether inline or batch mode, stamped or unstamped material, single- or double-sided.

Improved cost-efficiency and performance

The key advancement lies in the full integration of SurFunction's ELIPSYS® technology platform, enabling:

- Reduced costs through optimized DLIP beam guidance
- Use of alternative laser sources
- Improved process stability
- Faster cycle times

- Increased energy efficiency

Investment costs have been reduced by over 50%, significantly improving economic viability – a key factor for widespread industrial adoption. This opens new application areas in electrical connectors, sensor technology, and precision functional surfaces across various industries.

"With the now-operational production line, we are proving that DLIP not only works in laboratories or pilot plants, but has fully arrived in industrial series production," explains Dr. Dominik Britz, co-founder and CEO of SurFunction GmbH. "Our technology is production-ready, scalable, and economically very attractive – a major milestone on the path toward sustainable surface manufacturing inspired by nature."

Functional benefits for connectors and new applications

In contact areas:

- Up to 60% lower insertion/removal forces, enabling higher pin counts or simplified designs (e.g., no levers)
- Up to 80% reduction in electrical contact resistance, improved without lubricants or PFAS-based aids → ECHA-compliant
- More stable mechanical properties due to texturing (up to 50% less variation)
- Non-contact and material-friendly
- Double-sided functionalization

In processes:

- More reliable surface preparation for bonding and joining
- Anti-counterfeiting and traceability
- Improved sealing for overmolding
- 5–7x longer tool life for stamping tools with SurFunction's pre-/post-treatment → major TCO advantages

Overall benefits:

- Lower insertion/removal forces
- Reduced wear and longer service life

- Higher electrical conductivity
- Improved contact reliability
- Extended lifespan / reduced material degradation
- More stable electrical signals
- Less energy loss due to heat

For manufacturers, this represents an opportunity to develop new product generations with outstanding features while simultaneously achieving significant cost reductions across the entire value chain – from efficient product design and material savings during assembly to enhanced performance in the final product.

Sustainability advantages

Thanks to reduced friction and optimized electrical transitions, energy efficiency and resource conservation are improved – contributing to CO_2 reduction and sustainable production, especially relevant in e-mobility and electronics.

We are exhibiting at: Blechexpo, Messe Stuttgart, October 21–24, Hall 6, Booth 6107

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Background information on DLIP and ELIPSYS®:

Surface structures play a decisive role in the performance of almost all technical components, as generations of research have clearly shown. Nature itself offers fascinating examples of the efficiency of surface structures: the non-stick properties of the lotus plant or the iridescent color effects on butterfly wings are only possible thanks to complex micro- and nanostructures. However, replicating these natural phenomena industrially has been a significant challenge to date due to a lack of technologies that allow for cost-effective production.

However, fundamental solutions to this problem have been found thanks to groundbreaking research in recent decades and the invention of "Direct Laser Interference Patterning" (DLIP) by Prof. Dr. Frank Mücklich and Prof. Dr. Andrés Lasagni. DLIP has laid the foundation for revolutionizing the way we design surfaces at the micro and nanoscale. This technology utilizes the principle of interference, comparable to the interaction of water waves colliding with each other. This analogy can be applied to light rays, which are split and then superimposed in such a way that they interfere with the material surface. The result is highly efficient and precise structures that were previously only found in nature.

The consistent further development of DLIP technology by SurFunction GmbH has opened the door to broad industrial applications. ELIPSYS® (Extended Laser Interference Patterning System), the most advanced DLIP generation, enables the particularly fast and economical production of complex surface structures that improve the properties of a wide range of products (e.g., non-stick, antibacterial, energy-efficient, low-friction, highly electrically conductive, or tamper-proof). DLIP and ELIPSYS® thus mark a turning point in the manufacture and functionalization of material surfaces for a wide range of industries.

About SurFunction GmbH (www.surfunction.com):

SURFUNCTION
nature knows best

SurFunction is a leading system provider in the field of deep/green tech with a focus on surface modification. Headquartered in Saarbrücken, the company uses a wide variety of laser-based processes based on award-winning and patented interference technologies (DLIP). This enables cost-effective, cross-scale surface structures to be created in record time, modeled on those found in nature. Surfaces can thus be equipped with new, powerful, and particularly environmentally friendly properties.

True to the motto "NATURE KNOWS BEST," SurFunction taps into innovative potential and gives companies from a wide range of industries a big competitive edge. SurFunction aims to improve its customers' products or processes and actively help conserve resources. To do this, it offers comprehensive system expertise—from surface functionalization as a service to integrating complete systems into industrial production environments.

In addition to its headquarters in Saarbrücken, SurFunction has a development team in Dresden that works with the Technical University (TUD) on new optical laser systems and beam guidance technologies — in particular for the further development of the DLIP platform. Furthermore, there are close research collaborations with Saarland University and the Material Engineering Center Saarland (MECS) in the field of new, structure-driven surface principles. These partnerships enable close integration of basic research, materials science, and industrial application.