

## LPKF Develops Powder Coating for LDS Applications

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**Laser direct structuring (LDS) has established itself as the most flexible process for producing three-dimensional strip conductors on plastic. The boundaries are now being pushed further by an experimental coating powder with an LDS additive: now metal surfaces can also be upgraded to three-dimensional molded interconnect devices.**

Garbsen, April 2013. Dr. Wolfgang John holds a small white object shaped like a light bulb in his hand. Then he connects a cable to a 9 V monobloc battery and the "light bulb" begins to shine – but not, as is usually the case, from the inside of a glass dome, but instead through LEDs placed on the outside. He shows one of the first sample products that demonstrates this extraordinary functional coating: for example, the LDS coating powder means that strip conductors can be selectively applied to metallic base bodies.

With the LDS process, a component is normally produced from an LDS-doped plastic. The laser applies the conductive structures to the surface: it creates a micro-rough surface and activates the additive. In a subsequent currentless metallization bath, copper layers initially form on the structures thus created that can later be finished by means of nickel and gold.

By contrast, the LDS powder coating is available for use on metallic surfaces such as steel or aluminum. Powder application is done in an electrostatic process and is concluded by means of a baking process. Any colors can be applied; the illustrated sample body is coated with a bright white paint. The metallic bodies treated in this way can be laser-structured and then metalized exactly like plastic components. The process achieves a reliable insulation of the surface strip conductors against the base body by means of the uniform layer structure.

"With a metallic carrier, for example, heat problems can be solved more easily than with plastics, when LEDs are used. Product designers benefit from the additional options offered by powder coating and of course the spatial orientation of the laser direct structuring," explains Wolfgang John.

Further information on this process is provided at the "3rd International LED Professional Symposium + Expo (LPS 2013)" on September 25 in Bregenz.



#### **About LPKF**

LPKF Laser & Electronics AG manufactures machines and laser systems used in electronics fabrication, medical technology, the automotive sector, and the production of solar cells. Around 20 percent of the workforce is engaged in research and development.