

## Workshop »Coatings for Tools & Components«

### Low friction and wear resistant coating solutions for the automotive industry present situation and future trends

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Plasma-enhanced vacuum coating technology (PVD/PACVD) is one of the key contributors to improve the lifetime and efficiency of coated engine and fuel injection components for more than 20 years. Ionbond's Tribobond™ coatings increase the wear resistance and efficiency of power trains by reducing friction.

Hard and wear-resistant coatings, in particular the diamond-like carbon coatings, play an important role in combustion engines (ICE). They reduce friction, increase load-bearing capabilities and extend component lifetimes. Applied on components in state-of-the-art and future combustion engines and fuel injections systems, they protect high-loaded components in low-viscosity oils and future decarbonized e-fuels. The outstanding properties of Ionbond's DLC coatings can protect and extend the lifetime of coated components and help to reduce the global greenhouse gas problem.

The vision of a future mobility – sustainable and CO<sub>2</sub> neutral places increasing requirements on engineering. Higher specific mechanical and thermal loads on components and the need to minimize friction losses in tribological assemblies lead to a demand for new materials and innovative surface treatment processes.

Low friction carbon-based coatings are used already for many purposes in e-mobility applications. For instance, they are used to minimize the friction losses in electric drive trains and to extend the driving range of battery electric cars (BEV). Coated components for e-compressors, pumps, sealing, steering and braking units increase the robustness and lower the energy consumption of non-drive train systems.

A small overview will be given of present examples and an introduction to developments ongoing.