

Topic: Coating Development of Diamond-Like Carbon (DLC) Coatings for Polymer Gears using Physical Vapour Deposition (PVD)

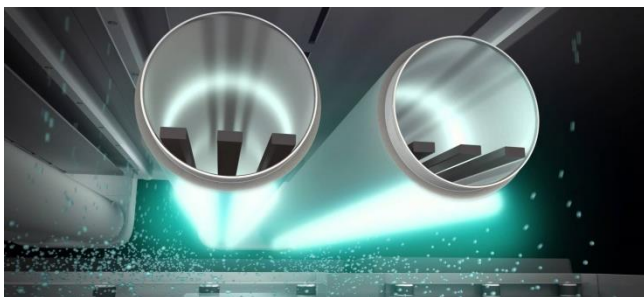
## PVD-Technology

### Topic:

Increasing demands on the energy efficiency and cost reduction of systems and machines require continuous further development of components. A promising technology for increasing efficiency, for example in the automotive industry, is the coating of friction- and wear-resistant lightweight components in drive systems using physical vapour deposition (PVD). Through the use of PVD coating technology, amorphous carbon coatings a-C(:H), so-called Diamond-like carbon (DLC) coatings, are produced on inexpensive plastics (polymers), which show friction and wear-reducing properties in lubricated systems. This opens up new fields of application for technical polymers.



Gear mesh of plastic gears  
[Source: imsgear.com]



Schematic representation of the PVD coating  
[Source: plansee.com]

### Aim of the work:

Within the scope of this work a DLC coating for technical polymers (PEEK and PA) shall be developed. For this purpose, after instruction on an industrial PVD coating system, variations of different process parameters will be carried out autonomously. The analysis of the developed coatings is done by the analytical methods available at the Surface Engineering Institute (IOT). This research serves as a basis for the iterative improvement of technical polymer coatings for use in highly stressed lubricated contacts.

### Conditions:

You study mechanical engineering, materials engineering, materials science or a comparable course of study. Are you interested in working independently and practically and in developing innovative coating systems? Then contact us by email or phone.

If you are interested we can make an appointment to discuss further details.  
Just contact me by email or phone.

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