Workshop »Coatings for Tools & Components«

HIPIMS – Coating technology for a new product generation of tools and components

Dr. Philipp Immich, Michiel Erden, Louis Tegelaers, Geert-Jan Fransen, Huub Vercoulen, Gabriela Negrea, Ruud Jacobs, Dr. Ivan Kolev, Dr. Chinmay Trivedi, Andreas Fuchs, Daniel Barnholt

IHI Hauzer Techno Coating B.V., Venlo, The Netherlands

pimmich@hauzer.nl

Surface engineering is determined as one of the key disciplines for reducing CO_2 footprint e.g. with extended life time of cutting tools or components and helping to create more sustainable products. HIPIMS coating technology is such an enabler for surface enhancement by adding or extending properties, like higher hot hardness, better corrosion resistance and many more. Since HIPIMS first reported more than 20 years ago, a lot of investigations and presentations on this topic had been published around the globe. Discovering new properties, different material behaviour compared to conventional arc and sputtered coatings and better performance in cutting, forming, tribological and decorative applications are reported and seen on certain products already in industry.

Modern production technologies for coatings on cutting tools or components are focusing on easy maintenance, low production costs per part, reliable processes and high efficiency. At Hauzer our focus is on the development and industrialisation of promising deposition technologies for high demanding customer requirements. In this regard we want to show the latest developments in the field of HIPIMS. By using this deposition technology - known material systems - can be further developed in terms of better performance in cutting, forming and tribological industrial applications.

The special properties, that results by using this advanced deposition technology are investigated and demonstrated on industrial size coating machines for automotive, consumer goods and tool applications. The obtained results show, that the high pulsed technology, HIPIMS, is an excellent tool for serial production in a modern production environment. We will also show that this technology can be easily upscaled on different machine sizes and deliver reliable industrial processes with a good ratio of coating costs per coated part and performance.