

Latest Results in HPPMS Thin Film Coatings for Cutting Tools

Christoph Schiffers, Dr.-Ing.; CemeCon AG, Adenauerstraße 20A4, 52146 Würselen, Germany

This talk describes the latest achievements in coating machine hardware and process technology for thin films deposited with HPPMS (High Power Pulsed Magnetron Sputtering). In particular, the up-scaling process from R&D to the industrial use for hard coatings for cutting tools will be highlighted.

CemeCon has recently introduced a new HPPMS power supply for its coating machines. These power supplies are fully integrated into the central controller of the coating machine. All HPPMS process data are incorporated in the coating recipe and are communicated to the power supply via a bus system. Moreover a Bias supply specially designed for the specific needs of the HPPMS process has been developed. The integration and synchronisation of HPPMS cathodes and the Bias supply for this process includes an arc management that satisfies the requirements of an industrial tool production.

The second part of the talk presents the first coating results on industrial carbide tools. First machining tests show a high potential of the HPPMS technology for machining operations for which the film adhesion is the most striking factor.