

Innovative and Successful Coating Solutions in PVD Arc and Sputter Technology

Sulzer Metaplas, a Sulzer Metco Company, provides innovative coating technology for its costumers for more than 25 years. No other company covers so many industries. Besides the Machining and Forming industries the company operates in the plastics, engineering and automotive sector as well as in the racing and semiconductor business. The company's innovation motor is driven by the developments of its own equipment technology.

With the modular METAPLAS-DOMINO platform enables the highest flexibility that meets individual needs and requirements.

It includes ARC and magnetron sputtering modules, PVD and PACVD coating modules, a combination of PVD coating and plasma nitriding and HIPAC (High Ionisation Plasma Assisted Coating) as state of the art technology. Furthermore these modules and technologies can be combined to hybrid techniques, i.e. a combination of ARC and sputter technology.

HIPAC technology constitutes a further development of the high current sputtering HIPIMS (High-Power Imulse Magnetron Sputtering) and perfectly appropriates industrial requirements. It combines the benefits of HIPIMS and the patented highly efficient power etching AEGD (Arc-Enhanced Glow Discharge).

This technology allows a high degree of ionisation similar to the ARC process. Through the high plasma density accurate coatings with high density are possible. These coatings are very smooth and reliably applicable at a temperature of approx. 60°C.

The deposition of metals and other coating materials by HIPAC is based on pulsing at low frequencies and low duty times (<10%). The short pulsing results in extremely high pulsed power. As a result, high charge (electrons and ions) densities in the plasma are produced. Thus the use of HIPAC allows a better control of the energetic bombardment of the substrate. This improvement supports the monitoring of the coating process and allows the deposition of hybrid coatings (e.g. ARC and HIPAC). This makes it possible to tailor phases, microstructure, and composition of grown coatings.

Besides the continuous improvement of the equipment technology Sulzer Metaplas furthermore broadens its coating portfolio. Its strength is demonstrated in the tool industry, for machining and forming, as well as in the plastics industry and is further developed and proven together with several own coating centers. The already well established M•A•C (Micro Alloyed Coatings) are continuously expanded and optimised. These coatings, like *Mpower*, *Mtec* and *Mforce* provide longer lifetimes, higher quality standards and a reduction of wear and friction on coated tools and other industrial applications.

Press Release



Fig.1 The modular METAPLAS-DOMINO system

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