HiPIMS can do even more – flexible to the last detail

Innovative coatings for components: teandm relies on the CC800® HiPIMS

Coating an extremely costly individual piece from high-tech markets under high time pressure is the nightmare of every production manager – and TEandM's successful business model. Flexibility is the DNA of the Portuguese specialist for component coatings from Coimbra. For a leap in performance and even greater dynamics, the experts are adding to their two CemeCon sputter systems a CC800® HiPIMS – the most flexible coating machine on the market.

Every day, Dr Ricardo Alexandre, Head of R&D at TEandM, is amazed at the components that customers send to TEandM for coating. And what kind of workpieces they are: Core components – used at the limits of what is feasible – for the oil and gas industry or paper production, intricate injection molds for plastics and light metal alloys and complex punches and dies for forming and cutting. “The components that we coat for our customers are mostly custom-made and usually one-off items. That is why we adapt each coating individually and precisely to the application. Often, work has to be carried out under time pressure. There must be no mistakes, otherwise it quickly becomes expensive,” Ricardo Alexandre describes the challenges

at TEandM.

„HiPIMS provides us with perfect support in the development of innovative coatings for SPECIAL AND EXTREME APPLICATIONS. In this way we create a springboard to MORE PERFORMANCE.
Coupled with our newly created clean room environment, we are laying the foundation for THE NEXT GENERATION OF INNOVATIVE COATINGS.“

Dr Ricardo Alexandre, Head of R&D at TEandM.

First-class technology, imaginative engineering and innovative materials as well as intensive cooperation, for example with the University of Coimbra, are the cornerstones of TEandM's success. CemeCon technology has been a central component in this equation from the very beginning: “TEandM and CemeCon have long been linked by a close strategic partnership.

The technology enables us to produce outstanding coatings: We meet the requirements for high wear resistance, optimum corrosion protection and above all very smooth surfaces. The layer structure can be optimally adapted and reproduced," says Ricardo Alexandre.

The next performance leaps

To further increase the premium quality of the coatings, TEandM has built a new clean room for the CemeCon coating systems. The unique parts and components can thus be coated extremely clean and without any dust deposits. The next step should bring even more flexibility and open the way to high-tech coatings at the highest level. TEandM found the right solution with its long-standing partner CemeCon: the CC800® HiPIMS.

Every day, the TEandM team uses the enormous development potential of the CC800® HiPIMS for its own innovations.

The system, which was actually designed for cutting tools, can also be used to the full extent for component coatings with the same hardware – and with a flexibility that cannot be found in any other system. "Almost any material can be used with it for the production of the high-performance HiPIMS coatings. In addition, there are fast target changes and the possibility to produce special targets with new material compositions. In doing so, we give the users all the options they need: Both the HiPIMS parameters and the synchronization of the cathodes with the bias on the table are completely open. All in all, this means unbeatable flexibility and thus the perfect combination for TEandM's requirements," Dr Christoph Schiffers, Product Manager Technology at CemeCon, is convinced.

A further plus: The enormous plasma density of HiPIMS enables layers of materials with high ionization potential such as carbon or special materials. This provides for example a better protection against corrosion by aggressive media in coated valves.

Pure flexibility with the CC800® HiPIMS: TEandM precisely matches the premium coatings for the complex components to the application.

HiPIMS as springboard to innovative layers

The CC800® HiPIMS is a machine for visionaries, and TEandM is making the most of its enormous development potential for its own innovations: Injection molding of recycled plastic, for example, poses major challenges. The material is inhomogeneous, sticks to the die and is therefore difficult to demold. With HiPIMS, the experts not only produce the required extremely smooth layers, but also better protect them against adhesion with new material compositions.

In order to further increase the premium quality of the coatings and to produce extremely clean coatings, TEandM has specially built a clean room for the CemeCon coating systems.

“Thanks to the unique residual stress management of the CC800® HiPIMS, we can go even further in layer development: The residual stresses of the coating can then be kept so low that the coated components can withstand an impact load for longer. HiPIMS provides us with perfect support in the development of innovative coatings for special and extreme applications,” says Ricardo Alexandre enthusiastically about the incredible possibilities of the CC800® HiPIMS. “In this way we create a springboard to more performance, which further develops our processes and optimizes our existing know-how in a beneficial way. Coupled with our newly created clean room environment, we are laying the foundation for the next generation of innovative coatings.”

TEandM

TEandM (Tecnologia e Engenharia de Materiais, S.A.) was founded in 2000 in Coimbra, Portugal. On a production area of around 5,000 m², high-quality coatings for a wide range of industrial applications are produced. TEandM uses thermal sprayed as well as PVD and CVD coatings, primarily to protect workpieces and components as well as punches and dies against wear, corrosion and oxidation or to give them lubricating properties, among other things. In order to develop innovative solutions for its customers, the company uses new materials and coating technologies and works closely with institutes such as the Centre for Mechanical Engineering, Materials and Processes (CEMMPRE) at the University of Coimbra.

www.teandm.pt

CC800® HiPIMS

Residual stress management

flexibility

Engineering

stamp

Dies

TEandM

component coating

oil and gas industry

injection molds