

DIAMOND COATINGS CAN DO ALL THAT!

Graphite electrodes, dental implants, sporting goods, lightweight components for automotive or aerospace, punches and dies - diamond coatings are used in many different applications and materials. CemeCon offers solutions for all cases to help users achieve the best results.

The basis of every CemeCon diamond coating is the coating material. With different coating materials, CemeCon has the right solution for every application and thus also for every tool. But what are the differences between the diamond coating materials? Diamond is diamond, after all? "That's not quite true. One difference, for example, lies in the morphology. Depending on the coating material, the crystal structure and size differ. In addition, our diamond layer materials, the so-called multilayers, always consist of several layers. The number of layers varies from 2 to over 20. Finally, the topography, i.e. the surface, also plays a central role. Smooth, smoother, smoothest – the application determines this property," explains Manfred Weigand, Product Manager Round Tools at CemeCon.

Especially with diamond coatings, the following applies: The coating

material is only half the battle. In addition, there is preparation for optimum adhesion, coating thickness specifications including tolerances, precision coating and final inspection with documentation. With the optionally available precision coating, the tools receive a coating in a final dimension specified by the customer within the required tolerances – including the corresponding measurement report.

Especially with diamond coatings, the choice of a suitable carbide as a carrier for the actual cutting material "diamond" is a decisive factor. Depending on the carbide grade and coating material, the appropriate preparation is selected – from gentle to intensive – CemeCon processes the tools precisely so that the coating adheres excellently.

With these adapted premium solutions, users achieve the best results

when machining a wide variety of materials: CFRP/GFRP, zirconium oxide, graphite, hypereutectic aluminum and other non-ferrous metals. With the latest diamond coating material CCDia®CarbideSpeed®, nothing more stands in the way of cutting carbide. This opens up new possibilities for tool and mold makers.

Diamond coatings are not suitable for machining ferrous materials, even if one might assume this due to their high hardness. For these materials, CemeCon has the right solution with coordinated HiPIMS coatings.

Whether diamond or HiPIMS – a first orientation to the suitable coating material for your application and your tools is available in the CemeCon Coating App at:

www.cemecon.de/en/coating-materials

MATERIAL TO BE MACHINED

APPLICATION EXAMPLES

DIAMOND COATINGS

ZIRCONIUM OXIDE



Crowns, inlays and bridges in the dental technology

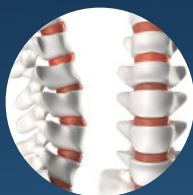
CCDia®CarbonSpeed®

FIBER REINFORCED PLASTICS (CFRP / GFRP)



Structural components for aircraft

CCDia®AeroSpeed®
CCDia®FiberSpeed®
CCDia®MultiSpeed



Back implants



Sporting goods such as bicycle rims



Lightweight construction components for e-mobility

GRAPHITE



Graphite electrodes for the mold production of displays

CCDia®CarbonSpeed®

CARBIDE



Stamps and dies for forming

CCDia®CarbideSpeed®

HYPEREUTECTIC ALUMINUM



Lightweight components in automotive engineering

CCDia®FiberSpeed®
CCDia®MultiSpeed

Diamond coatings are NOT suitable for machining steels. CemeCon offers appropriate solutions for this with high-performance HiPIMS coating materials.