

Hard facts for best results – hard cutting with HiPIMS

CemeCon and Boehlerit develop new solutions for die and mold making

HiPIMS-coated indexable inserts have changed ways of thinking and working in die and mold making. Hard facts for best results – following its motto, the carbide and tool specialist Boehlerit, in collaboration with CemeCon, has developed new coating specifications based on FerroCon® and InoxaCon® in a very short time, and can now deliver higher performance indexable inserts for die and mold making.

“Just a few years ago, we used soft steel to make dies. We milled it, hardened it, and then polished it intensively. Today, we take a steel ingot and harden it, and then mill the contour into the hard material. This saves a lot of time and money. Evolutionary leaps in cutting tools and HiPIMS coatings make this possible,” says Dr Arno Köpf, head of development for PVD coatings for Boehlerit.

Innovations are what drives Boehlerit, which is based in Kapfenberg, Austria. The company therefore collaborates very closely with universities, research institutes and other partners. “Indexable inserts for milling applications must be hard and resistant, on the one hand, but they must also have very high ductility to achieve a long service life. To stay ahead of the market, Boehlerit needs partners who also work at the highest level. We always test all the options on the market and decide on the best one,” says Köpf.



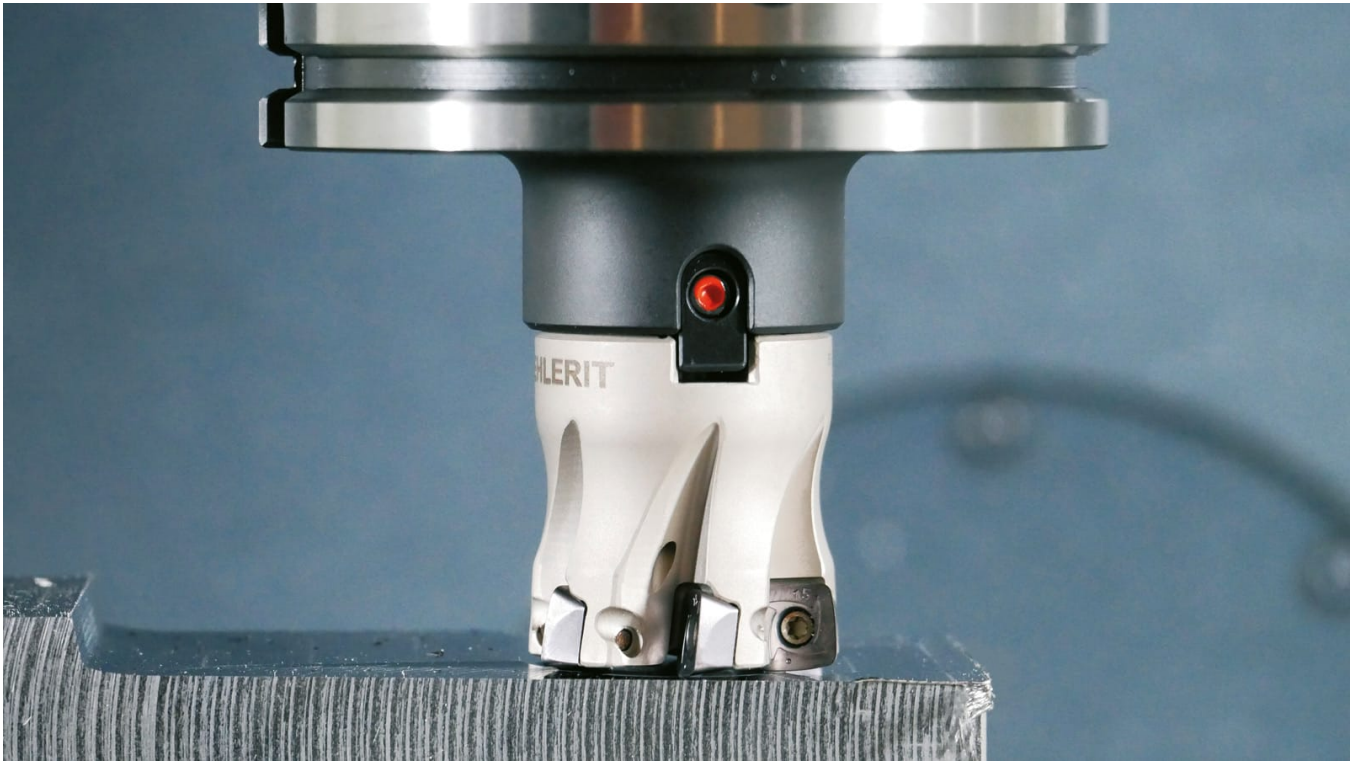
Dr Arno Köpf, head of development for PVD coatings at Boehlerit, is pleased with the impressive result of CemeCon's Premium Plus service. (Photo: Boehlerit GmbH & Co. KG)

Three months from the first sketch to the finished product

Last year, the premium tool manufacturer was looking for a quick solution for hard milling with inserts for die and mold making. Since all of its own coating units that are suitable for these types of trials were already in use, the company turned to CemeCon's R&D department. “CemeCon has the perfect expertise for this project. We have a long-standing partnership and the CemeCon developers know exactly what we need,” says Köpf.

In a three-month collaborative development project, the companies worked together to optimize various coating

specifications based on FerroCon® and InoxaCon®. Dr Werner Kölker, CemeCon's head of development, outlines the challenge: "This project dealt with extremely hard cutting – 60 Rockwell and more – and the schedule was extremely tight." As part of CemeCon's Premium Plus service, many factors were deliberately varied. Carbide grades, pretreatments, coating composition. Kölker praised the performance of the Boehlerit-CemeCon team, saying, "We fully exploited the capacity that is possible with HiPIMS."



The new FerroCon® coating specifications enable faster milling with significantly increased tool service life and improve the quality of the workpiece surfaces produced. (Photo: Boehlerit GmbH & Co. KG)

Close collaboration with an impressive result

The best results under time pressure can only be achieved together. Countless test tools shuttled back and forth between Germany and Austria. "We sent tools with the corresponding data sheets to Würselen. CemeCon treated the surfaces based on their condition, coated the tools and returned them to us. Then we machined and provided feedback," as explained by Köpf regarding the course of the project.

The result is impressive. "The new tools can mill faster, have a significantly longer service life and produce better surfaces, so that much less polishing is needed. The new developments are among the best that we have ever brought to market in the area of indexable inserts for die and mold making," says Köpf, who is very satisfied.

Boehlerit GmbH & Co. KG

Boehlerit carbides and tools set standards in the processing of metal, wood, plastic, and composite materials. The cutting material and tool specialists from the steel city of Kapfenberg in Styria, Austria, solve the most challenging processing tasks for materials of the future by taking advantage of their "proximity to the steel laboratory." Cutting materials, semi-finished products and precision tools, as well as tool systems for milling, turning, drilling and forming ensure process safety and efficiency worldwide.



800 experienced employees (500 at the Kapfenberg site) achieve annual sales of approx. 110 million Euros. Boehlerit invests 5% of that directly in research and development. This makes the Boehlerit innovation factory one of the leading international providers of customized solutions and services in challenging application areas.

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