

Precision redefined



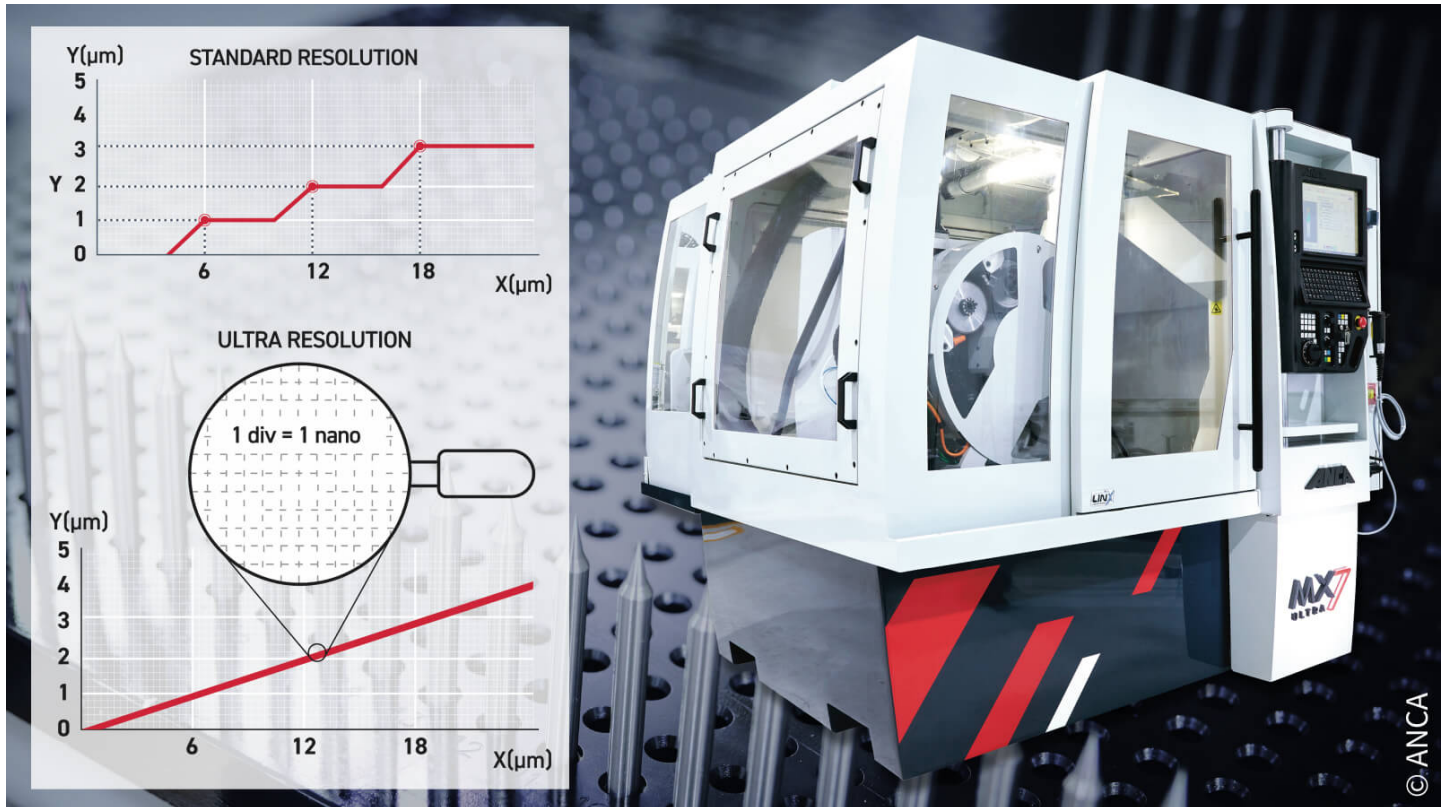
ANCA and CemeCon deepen their cooperation (from left): Edmund Boland, General Manager, AMT, ANCA, Dr.-Ing. Beate Hüttermann, CMO, CemeCon AG, Dr.-Ing. Christoph Schiffers, Product Manager Coating Technology, CemeCon AG, Martin Ripple, CEO, ANCA Group, and Dr.-Ing. Jan Langfelder, Global Key Account Manager, ANCA

Paving the way for machining markets: ANCA and CemeCon cooperate

Precision tools with highly specific properties in ever smaller batch sizes and with shorter development cycles – the demands of the machining markets are high. Those who have an eye on the entire manufacturing process of premium tools and know the critical success factors of each individual step have a clear advantage. When leading experts like ANCA and CemeCon join forces, extraordinary potential is created.

Both ANCA, a leading manufacturer of CNC grinding machines, and the coating experts at CemeCon take a holistic approach: For example, CemeCon advises tool manufacturers on the relevance of the geometry from the very beginning so that an optimum coating result can be achieved later. And grinding machine manufacturer ANCA also recognized the importance of optimum tool preparation for subsequent coating at a very early stage. “The best coating technology in the world cannot turn an inferior tool into a bestseller. All components – substrate, geometry and coating – must not only be of high quality, but also match perfectly. This is the only way to create an outstanding precision tool with which machinists can achieve top performance,” the experts agree.

Optimal conditions for a cooperation that quickly brought positive effects. Thus, a loose know-how transfer has turned into a tangible cooperation. In May 2023, the management boards of both companies signed a promising extended cooperation agreement. The first practical and, above all, very market-relevant results were not long in coming.

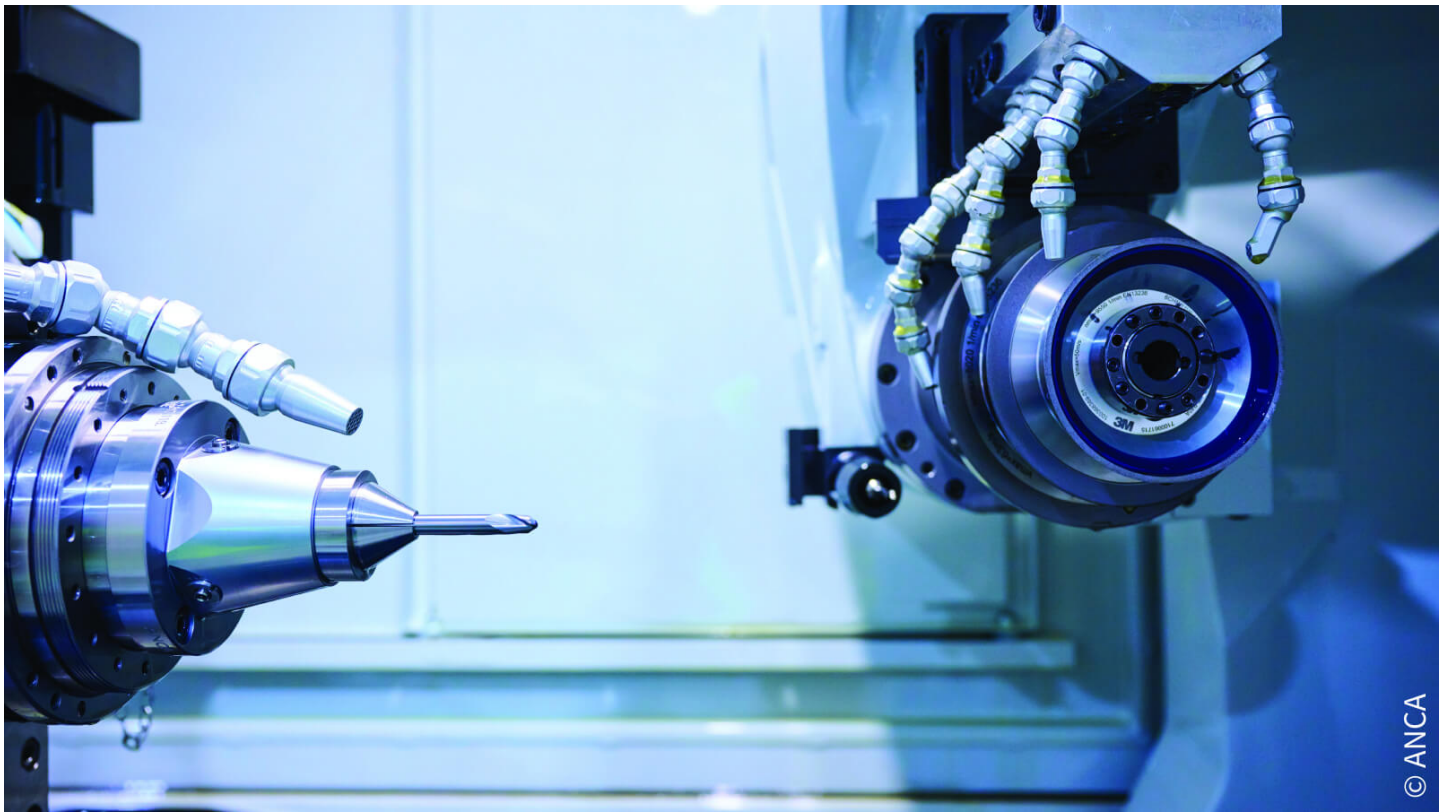


The MX7 ULTRA from ANCA enables an accuracy in the nanometer range when grinding precision tools

Cutting-edge technologies combined

In their joint development, the experts follow a simple equation: take tools that are ground with unprecedented high accuracy and surface quality, add the ideal coating material, and combine it all with the process know-how of both companies. With a tool solution made up of these factors, users should be able to achieve machining results that exceed all expectations.

The central component is ANCA's new ULTRA technology. The technology package is an upgrade for the company's MX series and now introduced in to the FX series at EMO 2023. It consists of a new nanometer control resolution, new hardware and software features, auxiliary equipment and a refined grinding process. "This enables the ULTRA series of machines to achieve a shape accuracy of less than +/- 0.002 mm for any profile – including ball nose and corner radius cutters. This produces cutting tools with outstanding surface finish, extremely high accuracy and concentricity. Market feedback has been enthusiastic even before the technology is rolled out to all machine ranges," say Thomson Mathew and Santosh Plakkat, product managers at ANCA, who were heavily involved in the ULTRA development.



The combination of ULTRA technology and SteelCon® brings significant advantages to the user

CemeCon brings the HiPIMS coating material SteelCon® into play for the project. SteelCon® is extremely hard and yet very tough and adhesive. This results in very high wear resistance. Together with the dense layer structure and high thermal stability, these are top prerequisites for best performance in hard machining. The smooth surface ensures optimum chip and heat removal, thus increasing process stability. The result: significantly longer tool life and outstanding machining results. SteelCon® shows top performance when machining a wide variety of materials - hardened steels beyond 50 HRC, stainless steels, nickel-based alloys, titanium, CoCr and more. The coating material is also particularly suitable for micro tools.

Dr.-Ing. Christoph Schiffers, Product Manager Coating Technology at CemeCon: “The production of micro tools poses many challenges – especially with regard to coating. Cleaning small and very small tools is demanding. Smooth surfaces are crucial for success in micromachining, because defects (droplets) can, in the worst case, lead to tool breakage. To maintain the sharpness of the cutting edges, low-stress coatings are essential. Achieving a homogeneous coating also requires adapted charging. Our HiPIMS technology masters the challenges skillfully. The combination of grinding technology and coating technology can bring further important advantages to the market here.”



Martin Ripple (left) and Dr.-Ing. Beate Hüttermann (right) sign the cooperation agreement between ANCA and CemeCon

Achieving outstanding results together

The expert teams from ANCA and CemeCon now wanted to explore together the potential of ULTRA technology in combination with SteelCon[®]: For this purpose, the same tools were ground on standard machines and on ULTRA machines. This was to show what advantages would result in terms of the coating process and also in terms of the machining results. Can a significant difference in tool life be identified? Does this make more aggressive cutting strategies conceivable? What new possibilities are opening up?

CemeCon uses high-precision measuring technology to precisely analyze customers' cutting tools. CemeCon also brought this know-how into the cooperation with ANCA and into the joint development. It is not only under the microscope that it becomes apparent that ANCA's ULTRA technology in combination with SteelCon[®] brings significant advantages to the user. The two cooperation partners will reveal exactly what these are during EMO 2023 in Hanover.

ANCA CNC Machines

ANCA CNC Machines is one of the world's leading manufacturers of CNC grinding machines. The company was founded in 1974 in Melbourne, Australia, where it still has its global headquarters and production. ANCA CNC grinding machines are used to produce precision cutting tools and components in a wide range of industries of the future, including power generation, woodworking, automotive, aerospace, electronics and medical. The vertical integration of ANCA allows ANCA to maintain very high quality standards without compromise and ensures maximum flexibility for specific customer requirements. With offices in the UK, Germany, China, Thailand, India, Japan, Brazil and the USA, as well as an extensive network of sales and service partners, ANCA provides local support to customers worldwide.

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SteelCon®

Machining industry

Premium tools

Know-how transfer

Micro tools

Titanium

Hardened steel

Stainless steel

Substrate

Tool geometry

CNC grinding machines

ULTRA technology