



Bruker alicon

"We have seen a 75% reduction in the time necessary to take readings on the factory floor. Most of this time savings is attributed to the ease of use of the EdgeMaster."



## Where simple handling is as important as measurement accuracy

The reliable verification of the micro geometry of their milling cutters is one of the top priorities in the research and development work of the US carbide tool manufacturer IMCO. The high measuring accuracy, repeatability and easy handling of the EdgeMaster tool measuring system impressed the management as much that shortly after investing in its R&D center an additional system for production was purchased.

"Four features determine the service life and machining result of modern day cutting tools. These are substrate material, coating, macro and micro geometry." Matthew S. Osburn, Vice President & Technical Director of US manufacturer IMCO Carbide Tool Inc. knows what he is talking about. Specialized in the development of milling cutters with multiple flutes, he also knows about the importance of the right measuring technology: "The cutting edge is the wear part of a milling cutter." IMCO views micro geometry as being so critical that they desired a system tailored for only those types of measurements. Recently, the supplier of carbide cutting tools has replaced its existing "outdated device with an upgraded and highly accurate measuring system". Osburn continues: "We are well known for our high level of research and development activities, and reliable verification of edge preparation is of major importance. The most important criteria

for the evaluation of suitable measuring systems for us were accuracy and repeatability of the measurements." In the end, the decision to invest in an Alicona measuring system for prototype development was an easy one. "I have the utmost confidence in the measurement values the EdgeMaster delivers", Osburn says. However, accuracy is only one advantage that the IMCO Vice President sees in the Alicona system. "We primarily measured edge hone radius sizes with our old system. With the EdgeMaster, and its ease of use, we now routinely measure many more attributes than before, and we do it quicker and with more confidence in the measurement results." As a conclusion, Alicona has not only met but exceeded all expectations in terms of accuracy, repeatability and reliability of measurements. Only shortly after the investment in its R&D center, the management was so impressed by the easy operation and robustness

of the optical measuring system that a second EdgeMaster is now being used in production.

### Shortened prototype development time of carbide tools

IMCO's tool design offers "greater productivity results for very small to very large operations", as the supplier says. "Higher productivity is due to increased chip flow and elimination of chip packing." IMCO customers further report on higher metal removal rates and fewer tool changes. All these attributes can be traced back to the supplier's commitment to the four pillars of a modern cutting tool, one of them being micro geometry and verified by high resolution measurements with Alicona's EdgeMaster system. Features such as shape and contour accuracy, rake angle, undercuts, chipping and roughness are decisive for the quality of the cutting edge and thus for the machined

workpiece. IMCO offers milling cutters with up to thirteen flutes that achieve above-average surface finish even with materials that are difficult to machine. Development and testing takes place in the internal research and development center, where IMCO can grind, hone, inspect and machine with prototype cutting tools. The EdgeMaster is also used to measure the surface finishes of the flute at various grinding parameters to optimize surface integrity. Osburn further explains: "All tools in prototype development are measured and documented with Alicona. We then machine with these tools, meticulously logging our machining results. This process enables us to quickly correct the tool geometry if required. The EdgeMaster guides us to developing the highest performance cutting tools on the market." Another important aspect in prototyping is the use of a flexible measurement system that enables highly accurate measurements on different tool shapes, types and sizes. IMCO has to measure a wide variety of sizes and helix angles. According to Osburn, it is "easy to cover this wide variety of tools with the EdgeMaster." He sees the right measurement technology as one of the decisive factors in ensuring a steady flow of new products and to improve upon the tools that are already offered. "Focus-Variation is critical to our ongoing success", he says. With a second EdgeMaster in use, the intensive research is now carried through to the production environment.

### Shop floor swears by easy handling

Measurement accuracy, repeatability and robustness of the Focus-Variation technology in combination with the easy handling of the EdgeMaster system has led to the decision to purchase an additional device in manufacturing. "Our R&D center develops exact specifications for the edge treatment on our high performance cutting tools. Once newly developed tools are released for production, using the same measurement technology as applied in research makes perfect sense", Osburn explains. "In production, the EdgeMaster is used to verify that the precise edge treatment devel-

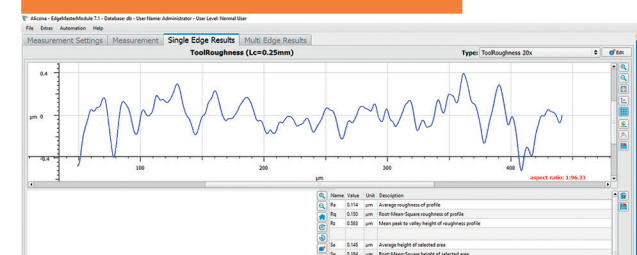


**"Particularly on the shop floor, simple handling is just as important as measuring accuracy. Alicona understood that 100%."**

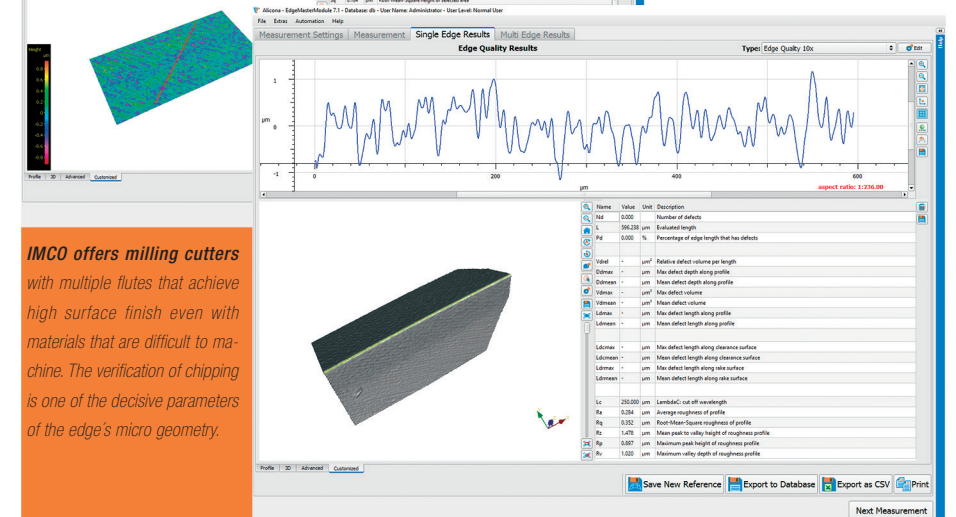
*Matthew S. Osburn, Vice President & Technical Director*



*One of two EdgeMasters in use at IMCO. One edge measuring system is applied in the R&D center where grinding, honing and inspection of prototypes is done. "We then machine with these tools, meticulously logging our machining results", says IMCO.*



*In addition to chipping, IMCO verifies cutting edge parameters such as radius, contour accuracy and rake angel of end mills. Roughness measurements, as shown here, are performed to verify surface finish on the flute.*



**IMCO offers milling cutters with multiple flutes that achieve high surface finish even with materials that are difficult to machine. The verification of chipping is one of the decisive parameters of the edge's micro geometry.**