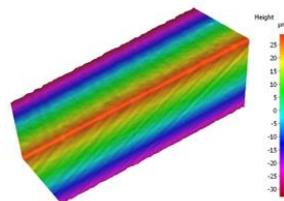


Super sharp by using laser machining

Laser machining creates cutting edges with smallest radii while eliminating chipping and tool wear. Laser machining systems of Laserpluss have been used in the serial production of diamond and carbide cutting tools for many years. With quality assurance and documentation by Alicona, this supplier invested in a benchmark from the industry, because Alicona 3D measurements are considered the decisive reference in the market.

It takes quite a bit to produce super sharp cutting edges with extremely tight tolerances. One way of manufacturing such complex geometries is using laser machining systems. Precise material removal using a laser is becoming increasingly popular with tool manufacturers as it offers machining possibilities that “conventional methods such as grinding or eroding can no longer cover.” This is how Laserpluss, a German supplier of laser machining systems, describes a current machining trend in industrial manufacturing. The company is one of the most innovative in the sector of laser machining. Diamond and carbide cutting tool manufacturers value the company’s laser machining systems for producing cutting edges of the highest precision and smallest radii without any chipping. And since measuring cutting edges with radii this small is an at least equally hard task, Laserpluss uses Alicona devices for edge inspection and the continuous improvement of manufacturing technologies. "The capability to measure small radii, the intuitive handling, and the many applications in an industrial production environment pushed Alicona systems to the top in our decision-making process," explains executive board member Wolfgang Prem, responsible for Sales and Operations. "We know Alicona is the standard in metrology and many of our customers use Alicona systems as well. This makes for objective comparisons and serves as a solid foundation for exchanging experiences."



3D measurements to ensure and demonstrate machining precision

Surface machining by applying laser technology is a relatively new surface processing method and competes with conventional mechanical and thermic machining methods like grinding and eroding. 3D measurements and visualization of edge geometries are great sales tools for Laserpluss, since they demonstrate the high quality of laser machining in a simple and illustrative way. They make the advantages of laser ablation over conventional methods plain to see. "In contrast to conventional

methods, no cutting force is exerted when producing cutting edges with lasers. This is particularly important for remaining efficient and economical when machining special materials," Laserpluss explains. Alicona's measurement results for tools made of PCD, CVD, and MCD speak for themselves when it comes to demonstrating the advantages and precision of laser-machined cutting edges.

"Better roughness produces better machining results"

In quality assurance and production optimization, Alicona is mainly used for testing and cross-checking production parameters of cutting lasers from the "Cutter" series in precision machining, used for producing both diamond and carbide cutting tools.

Surface parameters that are verified include edge geometry, edge roundness, contour accuracy, clearance angles, and undercuts. Roughness is another highly important parameter that needs to be measured in quality assurance. "Our customers are very demanding in terms of tool roughness, and for good reason. The roughness of the cutting edge significantly influences the machining result," Wolfgang Prem explains. "With Alicona measuring systems, we as a manufacturer demonstrate which Ra, Rq, and Rz values our cutters achieve." According to Laserpluss, the reason why tool manufacturers have started placing more emphasis on roughness is rooted in the advanced possibilities of laser machining. "In the beginning, achieving good surface roughness results with lasers was challenging. Today, our laser systems have significantly improved and offer a great deal more possibilities. Customers who have been relying on grinding, for example, and who are now looking to extend their machining capabilities need to be convinced that lasers can produce ideal roughness as well. And that's exactly what we do with measurements and visualization by Alicona", Wolfgang Prem concludes.