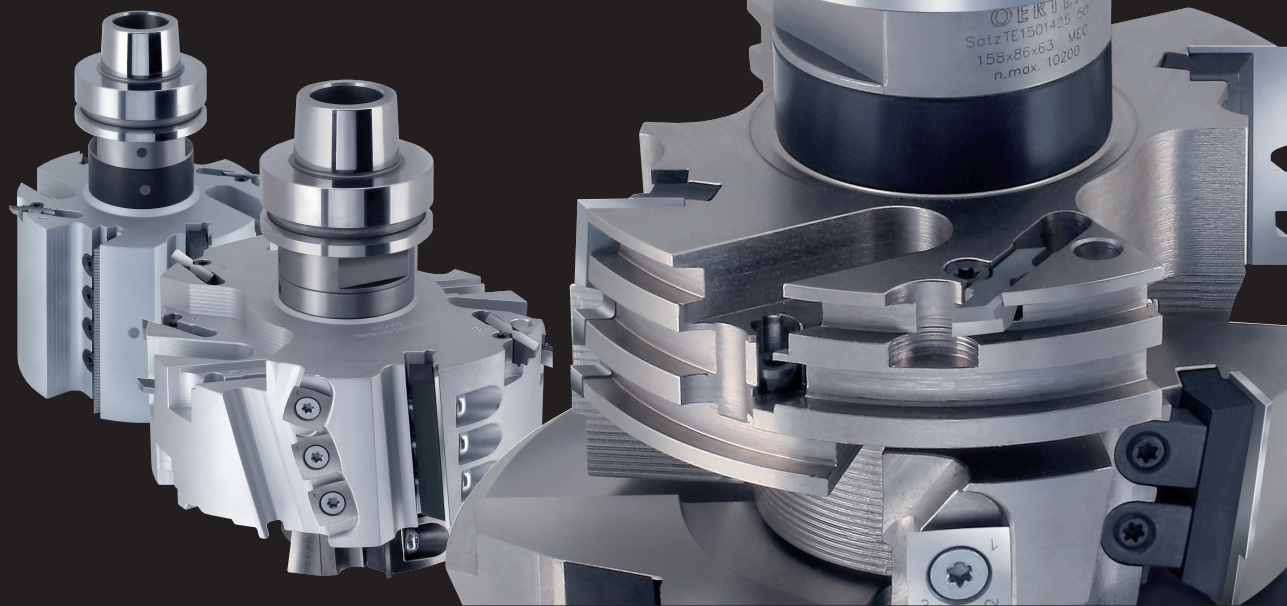
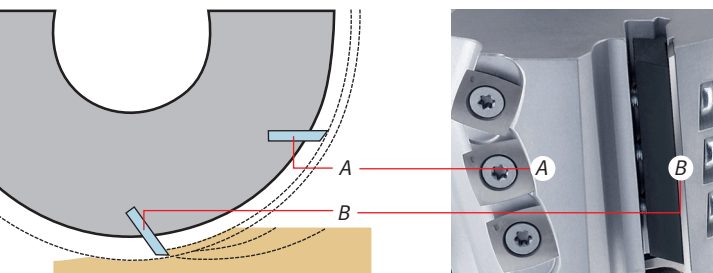


# HYBRID-Tooling and SP-Technology: More performance and efficiency on CNC machining centres



## HYBRID-Tooling: Improved endurance and excellent finish quality in shorter processing times

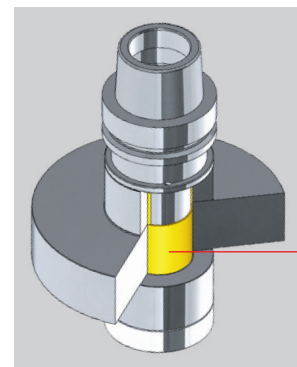
The new "Hybrid" concept combines two established knife-systems to obtain an optimal machining performance for the production on CNC machining centres. Due to a combination of raker knives and reversible finish knives, it is possible to achieve vastly improved performance values for CNC tooling. Classical four-edged knives are used for pre-planing; reversible finish knives create a high quality finish. The endurance of the finish knives is increased, whilst producing an optimal surface quality. Due to the raker knives sitting on a slightly smaller diameter than the finish knives, they have no influence on the finish surface but have a relieving effect. Hybrid-Tooling produces excellent results in CNC-manufacturing: longer endurance and a better surface in a shorter process time.



A = Pre-planing  
B = Finish

## SP-Technology: More efficiency in CNC-production owing to clearance free centering

The new clamping system "SP-Technology" guarantees an absolutely clearance-free centering of the tools on the arbor. Thanks to the most modern adhesive technology a zero tolerance between bore and spindle can be achieved. So the minimal residual imbalance and concentricity is optimized essentially. Due to this the rotation speed can be increased as well as the feed rates (about 25%) – with consistently good surface finish. A maximum rotation speed of 10.000 rpm is possible at a tool diameter of 180 mm.



Zero tolerance between bore and spindle thanks to the most modern adhesive technology

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