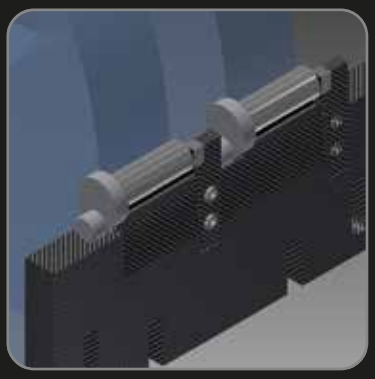
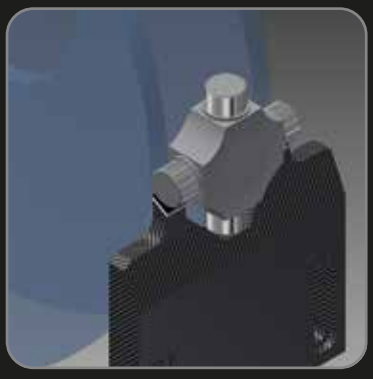
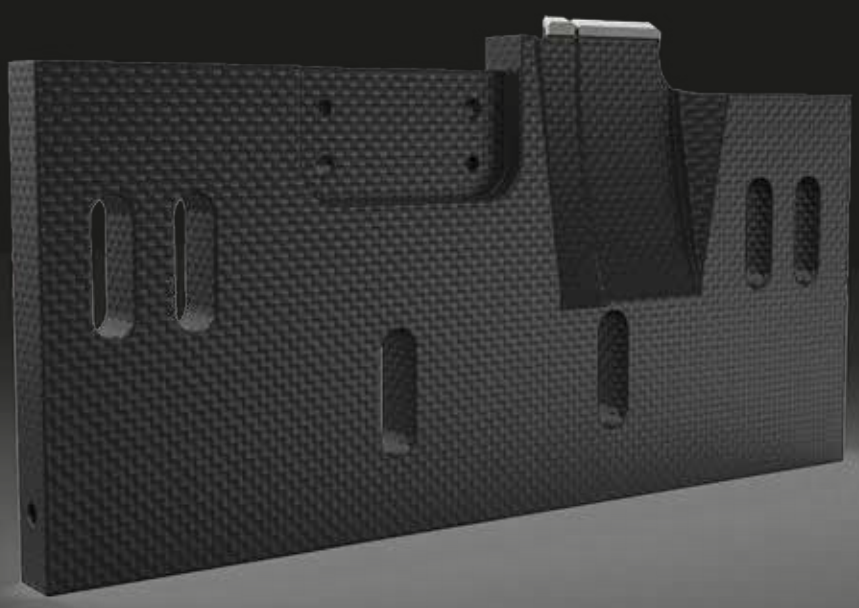
SERMA
WORKREST BLADES FOR CENTERLESS GRINDERS



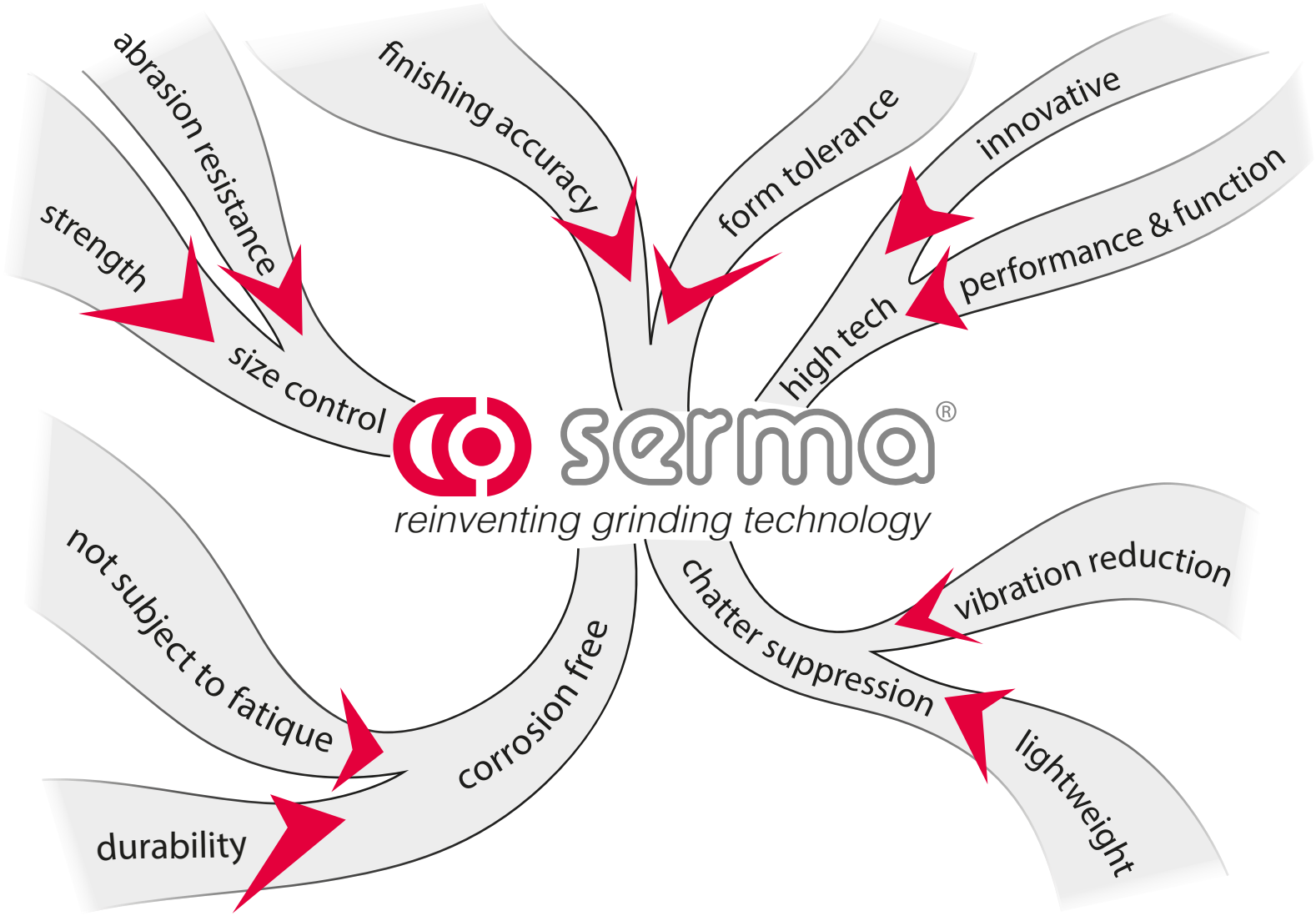




BASIC FACTS

THE CHANNELLING FLUX

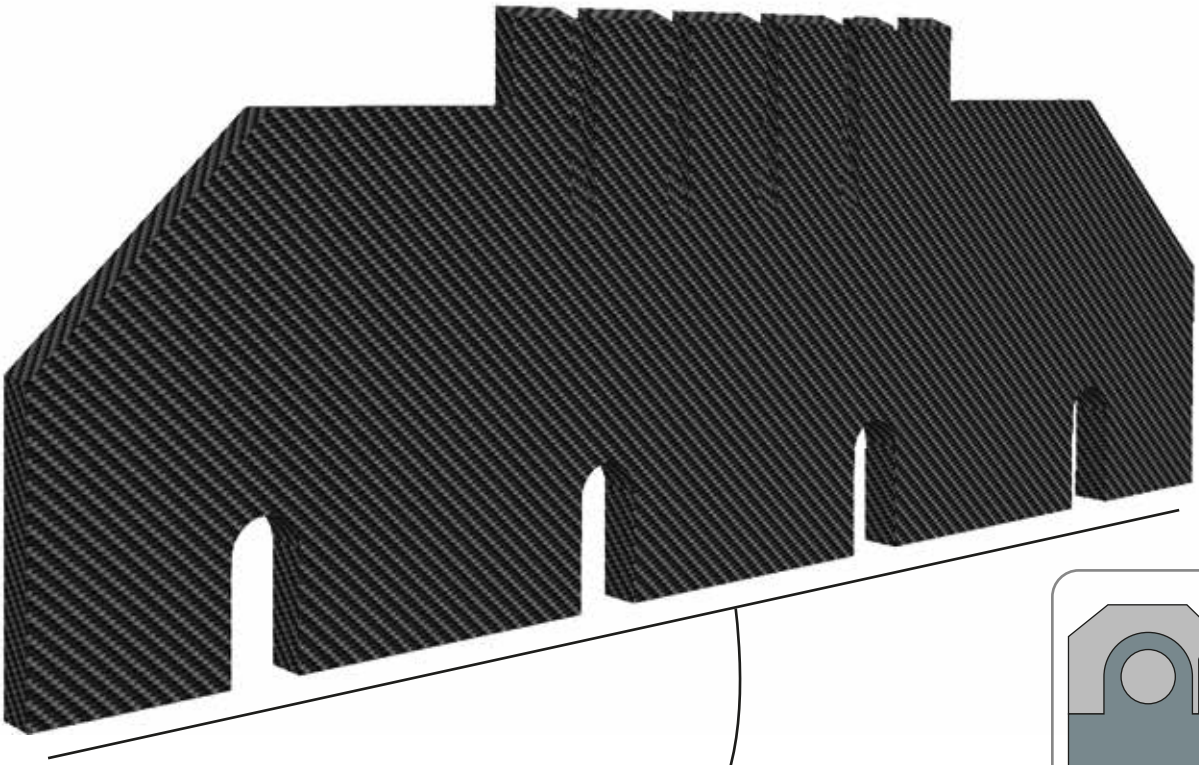
Modern high-tech materials integration into the metalworking industry poses considerable challenges. PCD and CFRP requires indeed significant expertise in designing fiber orientation, in weld joining interfaces, in precisely trimming to micrometric proportions the hardest substance known on earth. Both new supermaterials impressive potential have been exploited to bring to their extremes the quest for enhanced wear resistance, provided by PCD diamond, and superior damping ability, given by the CFRP body.

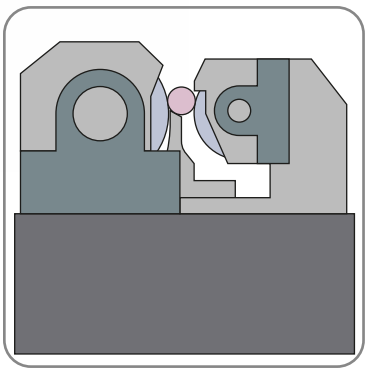


Centerless grinding is a metalworking process suitable to machine perfectly round parts efficiently and effectively. Such distinctive features are due to the set up where the workpiece is supported along three lines of contact: the grinding wheel, the control wheel and the workrest blade. The workrest restrains the workpiece during the process and must absorb a substantial part of the interacting forces. Especially for long run and large volume productions as well as in case of tight tolerance requirements, the workrest blade plays an essential role: it is a critical element whose function is a major concern among specialists.

PCD

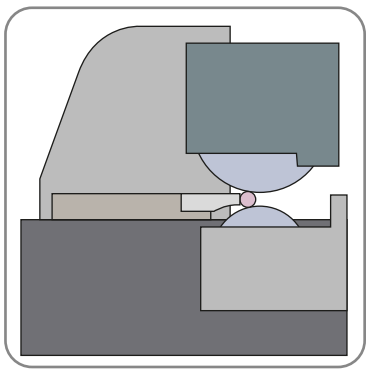
is the acronym of Poly Crystalline Diamond, and consists of diamond particles, dispersed into a binder, grown upon a substrate.

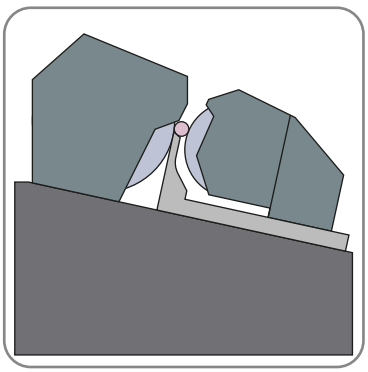




CFRP

stands for Carbon Fiber Reinforced Plastic, and is a fiber compound made of plastic matrix (polymer) and carbon fiber layers.





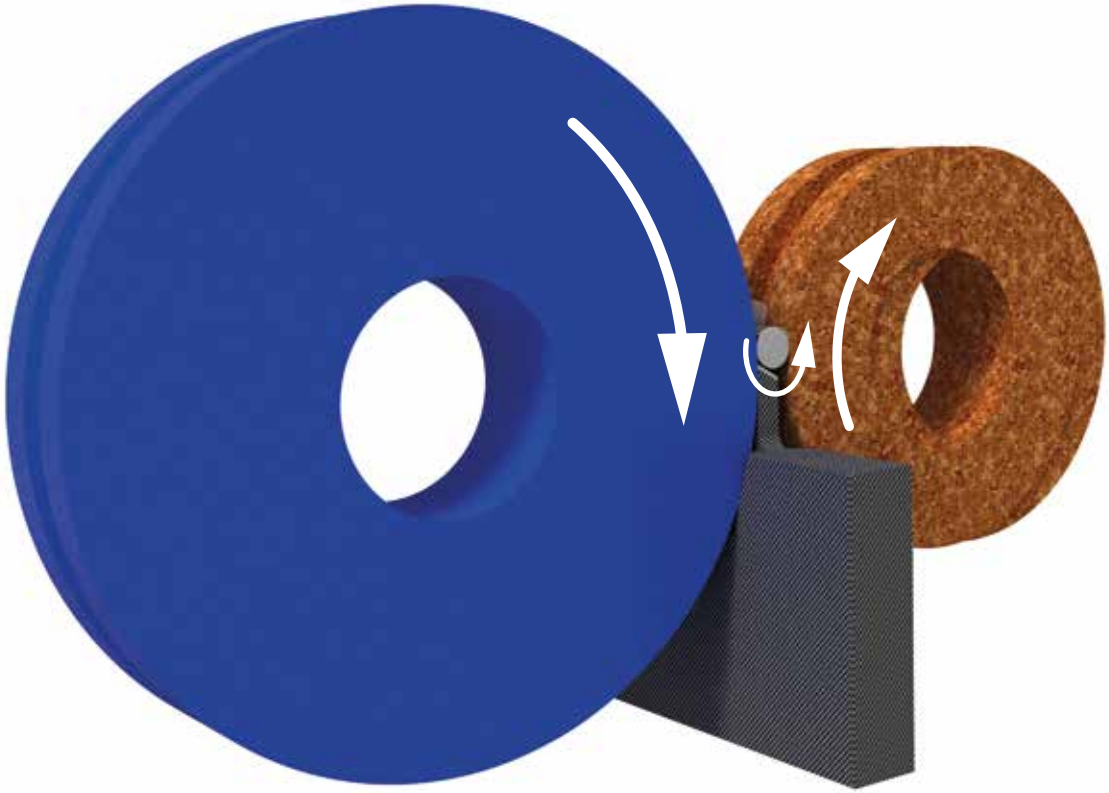
TRUE FACTS

VALUE ADDED

Vibrations

influencing the blade behavior, which then could undermine the consistency of the grinding operation, vibrations are caused by several factors: e.g. workpieces with areas of different hardness, out of round of one or more diameters, uneven stock to be removed.

- *Stiffness*
- *Damping factor*
- *Thermal stability*

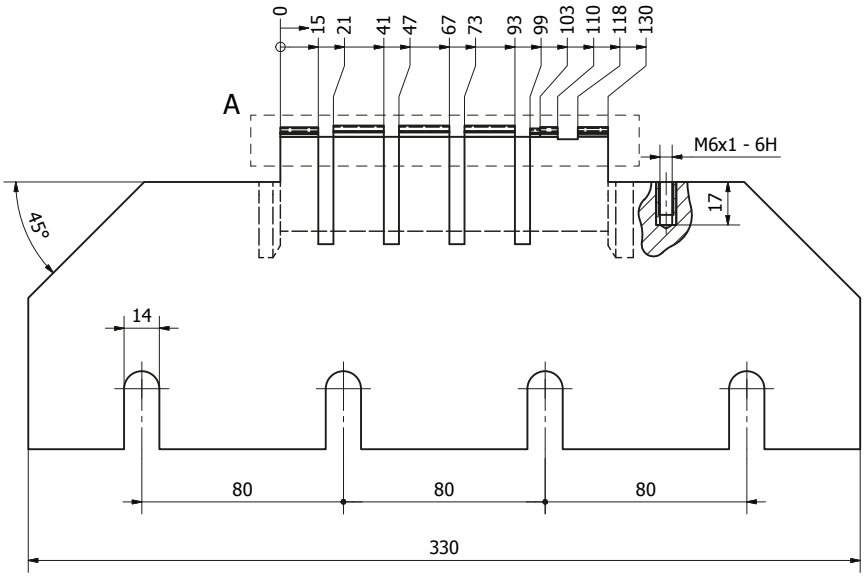


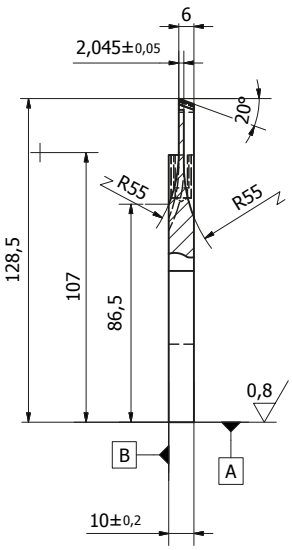
Wear

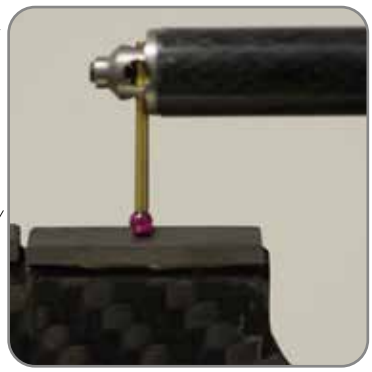
usually develops as a straight line, is due to the motion of the workpiece and its relative movement climbing up the towards blade tip as the stock is ground away. It affects the quality of the work.

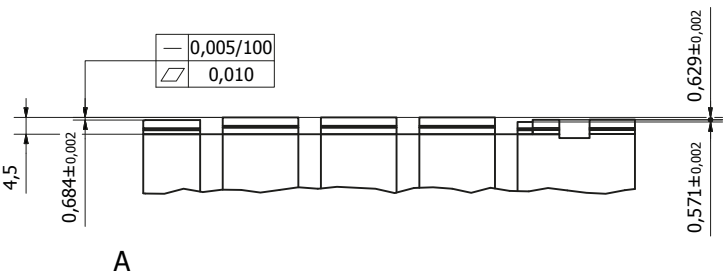
- *Hardness*
- *Heat sensitivity*
- *Friction coefficient*

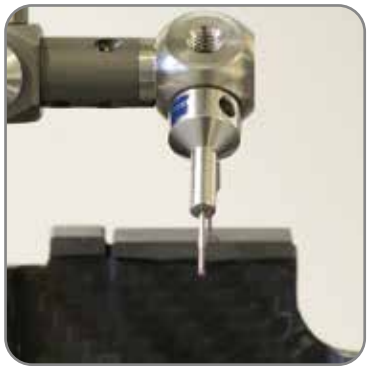
stage	designing					
	pcd	grade	0,5 µm 1,0 µm 10,0 µm 25,0 µm		non-polished	
		thickness	0,5 mm 1,0 mm 2,0 mm 3,0 mm		polished	
	adhesive engineering					
	cfrp	fabric	3 k 6 k 12 k 24 k			
		core	honeycomb foam wood solid	aluminium nomex	small cell medium cell large cell	





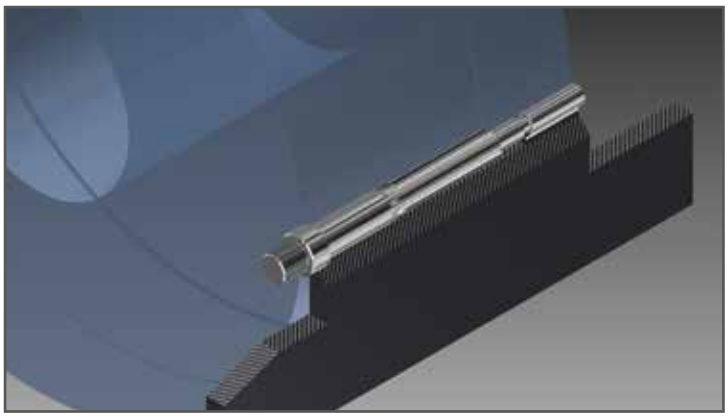


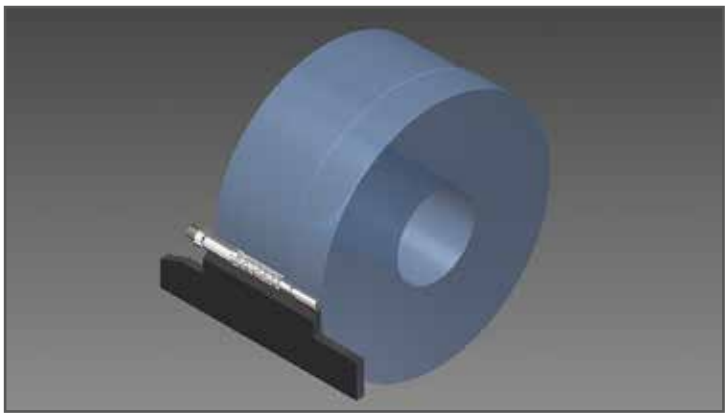




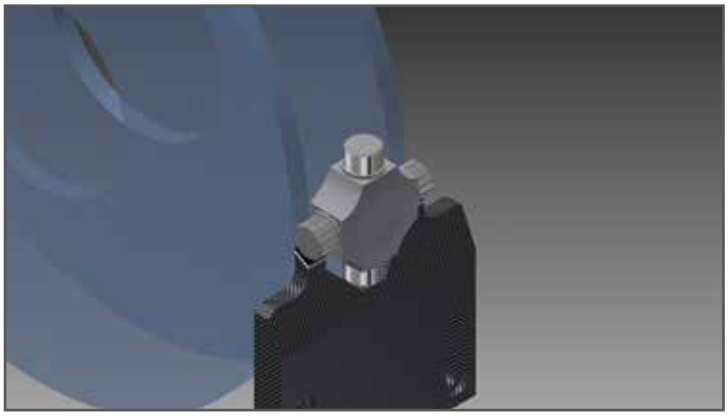
HARD FACTS

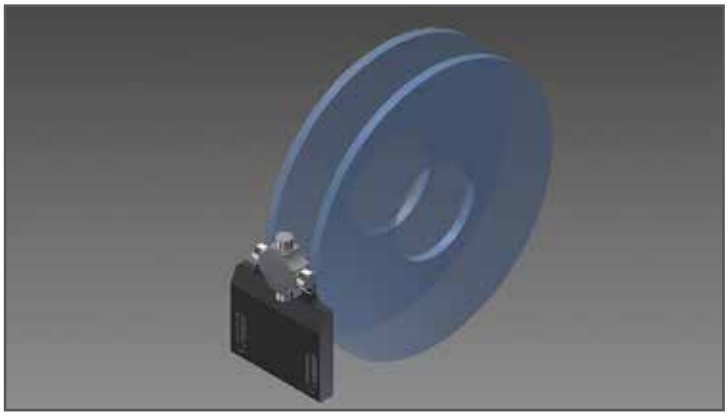
APPLICATION EXAMPLES



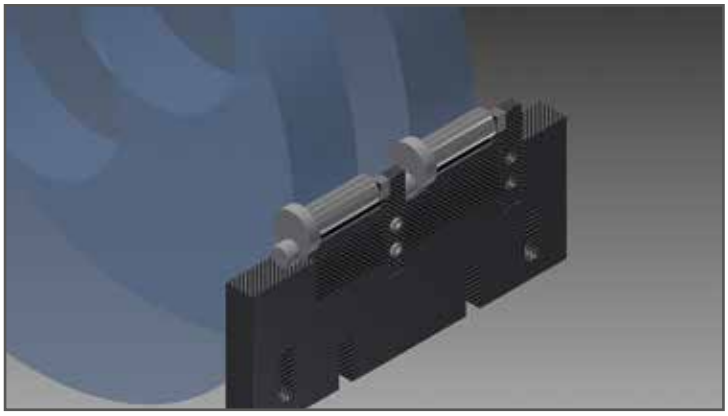


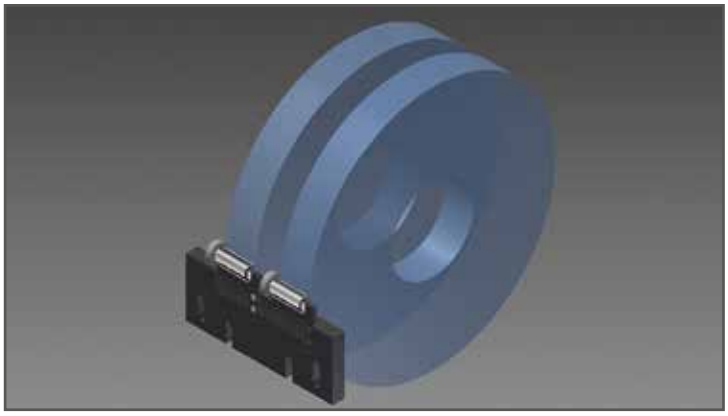
SPINDLE SHAFT





SPIDER





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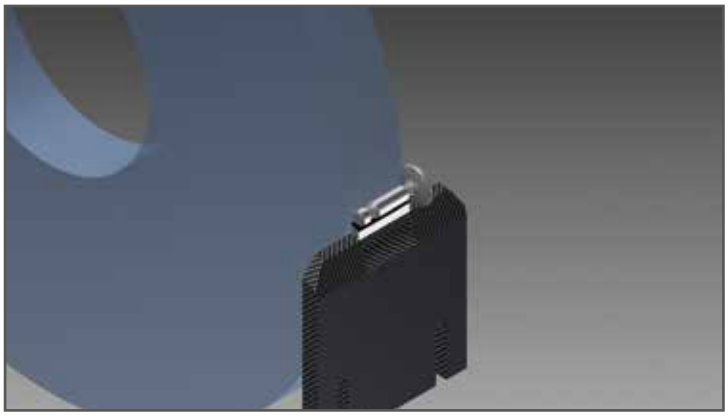
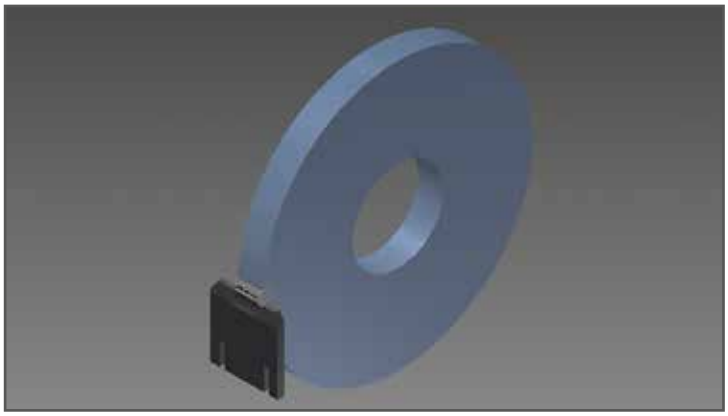
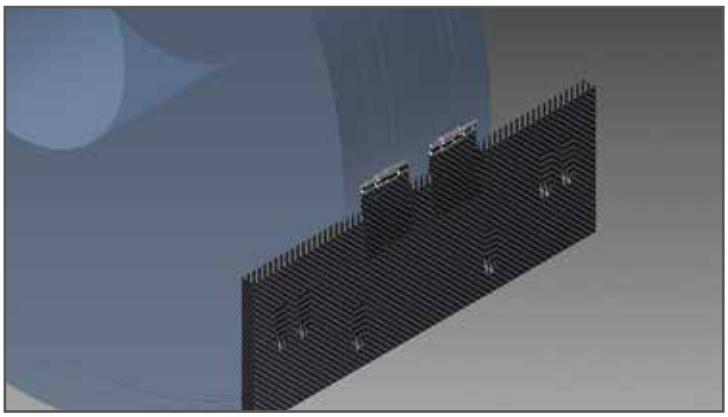
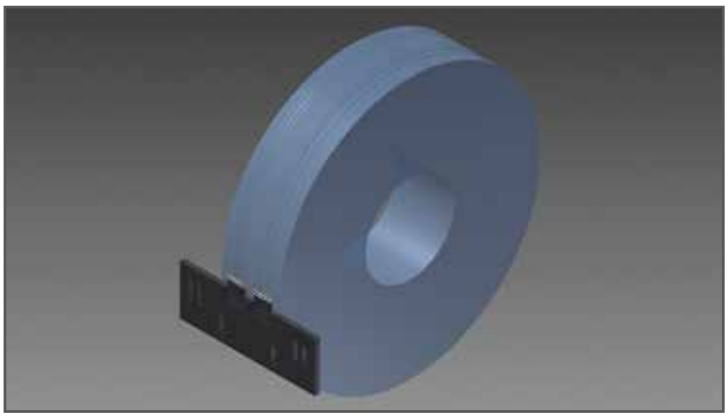
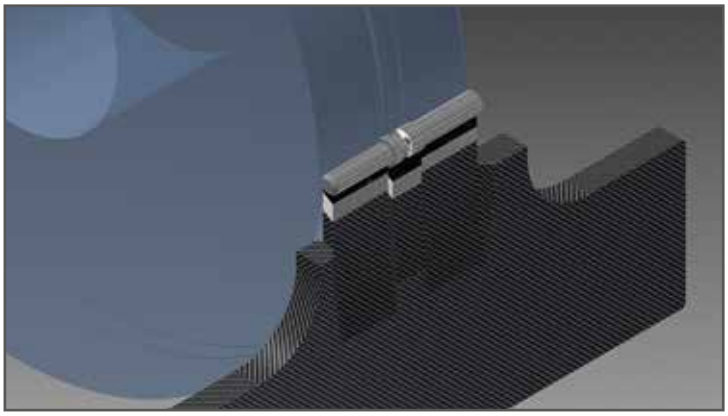
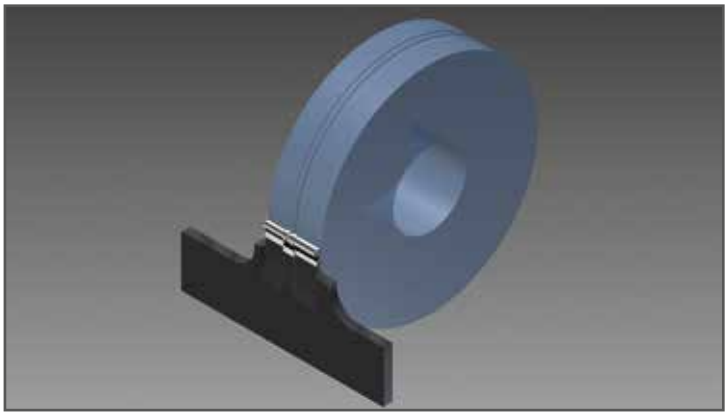




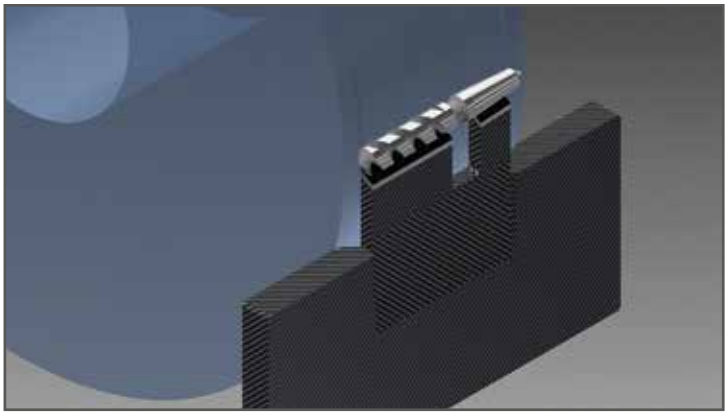
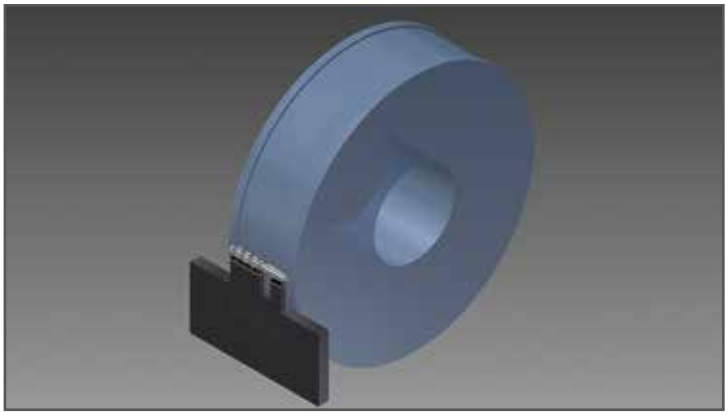
ENGINE VALVE

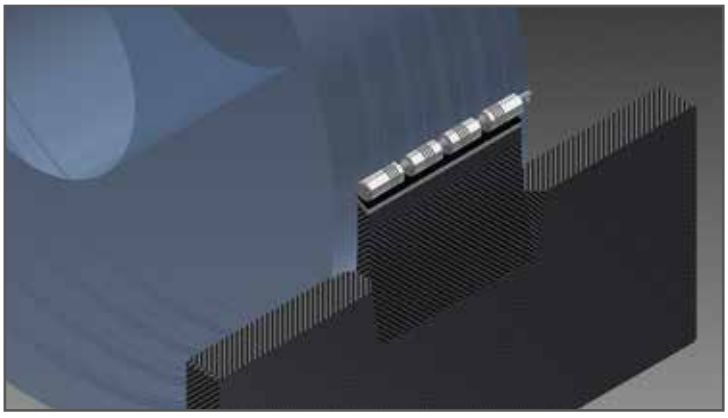
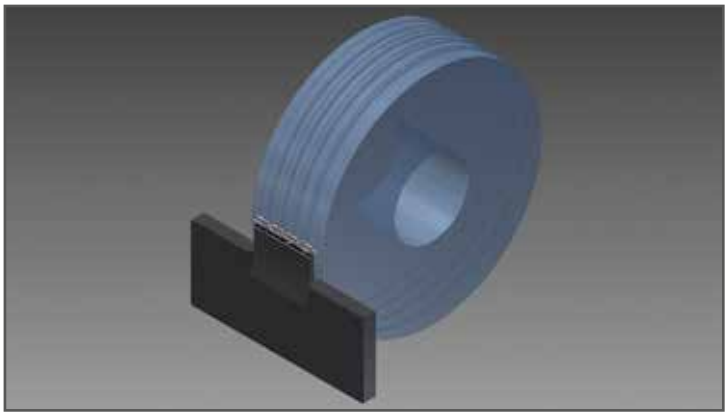
DIESEL INJECTION NEEDLE

INTEGRATED BEARING

TOOL SHANK

HYDRAULIC SPOOL

SERMA
WORKREST BLADES FOR CENTERLESS GRINDERS

INTELLECTUAL PROPERTY

PATENTED

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