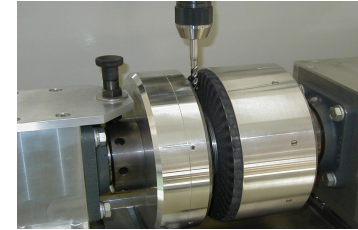
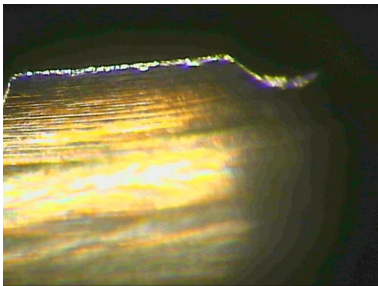


technology

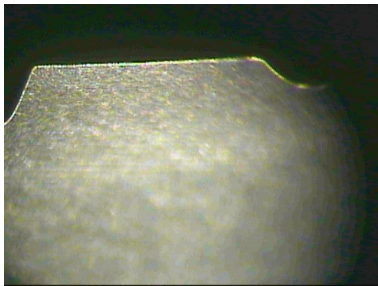
Process: The Magnetfinish (MF) technology is a new mechanical processing form for the workpieces surfaces. The workpiece is positioned in a magnetic field created by a magnetic instrument. The gap is filled with a special processing powder. Each grain of this powder contains abrasive and magnetic components. The magnetic components have the function to hold the powder in this space meanwhile the abrasive components fulfill the cutting function by the relative movement of powder to the workpieces. The powder holds on the surface of the magnetic instrument and accomplishes its movements. By using permanent magnetic instruments the adhesion of the powder is very strong, so it gives a high pressure on the surface which is in process. A very high productivity of cutting process is so the result of this technology.



Applications: With this technology it is not only possible to process magnetic materials (e.g. HSS) but also light magnetic (e.g. carbide) and non-magnetic materials (e.g. Aluminium). Especially for processing of cutting tools are two magnetic instruments applied. The Magnetfinish technology can be used for materials with different hardness. The powder works during the process as an elastic tool. The hardness of this tool may be varied through the variation of definite technological parameters of the process. So, for example the enlargement of the processing interspace between the two magnetic instruments and the cutting tool surface generates a more smooth and elastic tool. Surfaces will be smoothed till a roughness of $R_a = 0,02 \mu\text{m}$ and $R_z = 0,08 \mu\text{m}$. Outside edges and chipping edges get an exactly defined and reproducible radius between $3 \mu\text{m}$ and $50 \mu\text{m}$.



M12-Tap, second tooth,
80 x magnification,
cutting edge jagged and with burrs



M12-Tap, 15s MF-processed,
elimination of nicks and burrs,
smoothing the surface

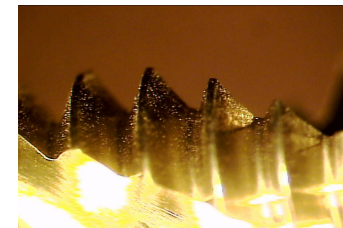
Due to the decreasing of the surface roughness and the reproducible edgerounding, the Magnetfinish technology is predestined for processing of different cutting tools. The regular and exact rounding of cutting edges is very important not only for tools which will be finished without getting a coating layer but also for best preparation to a coating process. Typical examples are: taps, mills and endmills, drills, stamp tools etc..

A further application of the Magnetfinish technology is polishing of coated surfaces. Just in a few seconds droplets will be removed and the coating layer will be polished. The coefficient of friction of the tool decreased considerably. This effect was already demonstrated on different tools and wide area of coating layers.

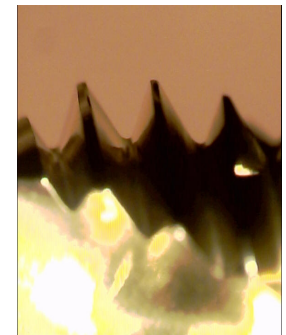
The Magnetfinish technology can also be applied on various and complex surface structures in only one step. Our engineers are continuously testing together with our customers new application areas.

features

application	benefit
Defined rounding the cutting edges of tools, preparation for coating	Avoiding of the running in phase, extending life time, improved adhesion of coating layer
Polishing the flute of cylindrical tools, for example deep-hole drills	Better chip flow, increased productivity of tool
Polishing after coating, removing of droplets	Reducing friction, increased productivity of tool
Processing of components for example engines and gears	Decreasing of roughness till $R_a 0,02 \mu\text{m}$, improvement of slipping properties
Removing of grinding burrs on tools, e.g. saw blades	Extending lifetime, improved adhesion of coating layers, compliance to requirements for medical applications



coated tap before polishing



coated tap after polishing with
Magnetfinish

Everytime you requieres defined edge rounding, polishing and deburring in micrometer size, the Magnetfinish-Process gives you the best reproducible results in shortest time.