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Double the tool lifetime for stamping and fineblanking due to the cutting edge preparation

In the case of machining tools it is well known that the purposeful and defined preparation of the cutting edge leads to higher tool life and increases in productivity. In toolmaking for stamped and fineblanked parts there is the same with respect to the improvements, but this realization has been shown so far only among some technology leaders.

Gerber brush polishing technology is recognized worldwide as a cost-effective, process-safe and proven process for the defined cutting edge preparation of punching punches, dies, indexable inserts, profile cutting plates, drilling and milling tools and other tools. With this technology not only defined radii in the 0.01 mm range are produced, but also the roughness of the cutting edge surface is improved by a factor of 3 and the surfaces are polished. The positive effects are obvious: the result is a significant increase in tool life and improved cutting data.

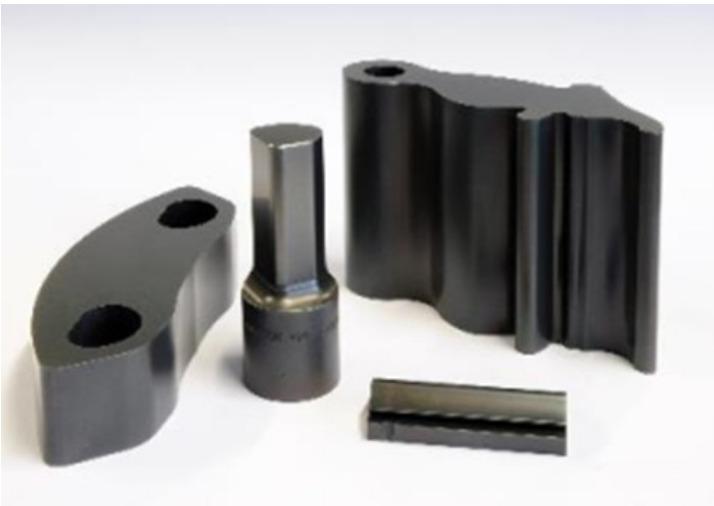


Illustration 1: Fineblanking punch (Source: Feintool AG)

The improvements are in the detail of the cutting edge preparation, which are hardly perceptible with the eye. Only the view under a microscope makes the difference between the ground and the brushed edge obvious. In case of the brush polishing process developed by Gerber, the tool cutting edge is uniformly machined and rounded, regardless of the workpiece contour.

At the same time, the sensitive cutting edge is polished and thus further stabilized. There are therefore two effects: the preparing and polishing of the cutting edge. With the Gerber brush-polishing process, radii can be produced from a size of 5μ up to approx. 200μ consistently. It is also widely used to prepare tools for coating. For without such a preparation the coating would quickly flake off at the most important point, namely the cutting edge. At tests by Feintool AG, a well-known manufacturer of fineblanking tools, the result is visible under the electron microscope:

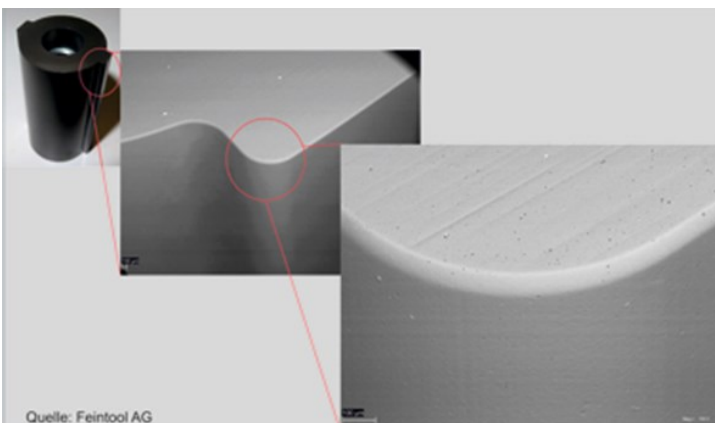


Illustration 2: Microstructure of the brushed cutting edge

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In practice tests, an increase of the tool lifetime by 30% - 200% is shown by the cutting edge preparation using Gerber brush-polishing technology. But there are other positive effects:

- Increased tool life 30% - 200%
- Consistency as a result of the tool life
- Consistency in the parts quality
- Increased stability of the cutting edge
- Reproducible and efficient cutting edge preparation



Illustration 3: the Gerber brush polishing machine BP-smart is perfect for the toolmaking

In order to make the results reproducible for machine tool manufacturers, Gerber has developed a powerful, smart brushing machine specifically for tooling applications. Therefore, their name comes BP-Smart. The machine is used both for rounding the cutting edges but also for uniform deburring of the dies and other parts in the tool shop. It can be equipped with natural bristles using a polishing paste or with diamond-impregnated brushes of different qualities or also deburring brushes.

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