

ECS: shape and sharpness in a single process

Electrochemical stamping (ECS) now enables knives and blades to be manufactured in a single process for the first time. Blades produced by ECS are as sharp as a razor. Until now it has proven extremely difficult to cost-effectively produce blades with complex shapes, high precision, several edges and a high degree of sharpness. Today, manual finishing work must still generally be performed on blades which have to meet rigorous quality requirements. The production of this kind of blade in large batches has therefore increasingly been transferred to low-wage countries. Thanks to electrochemistry, or more precisely to ECS, it is now possible for the first time to give blades and knives their shape and sharpness in a single process, ensuring cost-effective manufacturing of the highest quality. ECS is

a variant form of precision electrochemical machining (PEM). Gebauer Medizintechnik GmbH has combined its expertise in PEM technology and in conventional blade manufacturing to create a new process for blade production, ECS. It is a cold process and does not result in any thermally or chemically-induced structural changes, as does laser

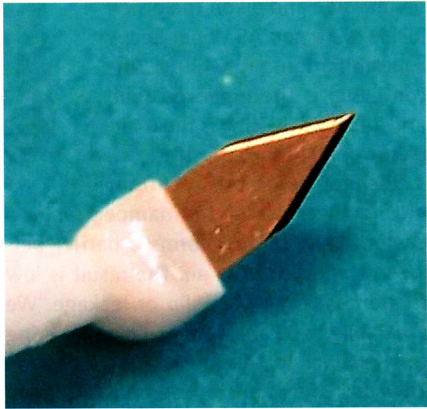


Image: Gebauer Medizintechnik GmbH

Microscopic image of a microsurgical scalpel produced with ECS.

processing or electrical discharge machining. ECS enables processing of steel or metal of any hardness. It can also produce extremely thin blades, as there is no contact between the tool and work piece (non-contact processing). Moreover, ECS can produce blades of almost any shape. The ECS tool undergoes almost no wear and tear, enabling quality to be maintained throughout very large series production. The complete absence of burrs on the components is a further benefit. Cleaning is easily carried out. The cutting edges produced by ECS are extremely sharp. High initial costs associated with the production of an ECS tool is the only drawback of ECS. Consequently, ECS is not well suited to very small quantities of under approx. 1,000 blades, unless the shape of the cutting edge or blade is too complex for conventional grinding methods.