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OTEC'S DISC FINISHING AND ELECTROPOLISHING DUO:

NOTHING MAKES JEWELLERY SPARKLE LIKE A UNIFORM SURFACE

Sophisticated, contemporary silver jewellery is a popular accessory the world over. It's the finishing touch to an outfit and makes a statement about the wearer's personality. In the age of online shopping, consumers have far more transparent access to the market. So they're increasingly discerning when it comes to materials, workmanship, design appeal and value for money – they shop around! They judge the value of a piece on the intricate details and shapes that make it gleam and sparkle from every angle. And, of course, on price – especially for mass-produced items.

The key to competitive edge in today's global market is maximum quality at minimum production cost.

Twice as fast: OTEC's two-stage surface processing

Manual surface processing is particularly common in the jewellery sector. But it's time-consuming, and time is money. One of OTEC's international customers discovered to their great satisfaction that our two-stage mechanical process works like a charm on real silver jewellery.



Intricate silver ring before two-stage mechanical processing (Ra μm 0.6). Source: OTEC.



Intricate silver ring after two-stage mechanical processing (Ra μm 0.030). Source: OTEC.

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First, the visual results were stunning, with no impact on the delicate contours, and minimal rounding that maintains the integrity of the design. Second, processing time with our solution was an amazing 50% shorter than with their old system! In short, a double-win in terms of customer satisfaction.



In stage one, the jewellery is prepared in a **CF Series Disc Finishing Machine** using a wet process in an open container that has a disc-shaped floor with a rotary bearing.

It is added to the fixed container along with a suitable grinding or polishing granulate. When the disc turns, the contents are set in motion in a toroidal flow. Centrifuging the granulate and workpieces makes this process highly intensive – up to 20 times more effective than conventional vibrators, for example.

Often imitated, never matched: only OTEC has the technology and expertise to process the thinnest workpieces (< 0.4 mm). Our zero gap system containers are unique.



In stage two, the jewellery is **electropolished in the EPAG Flex**. Electropolishing is an electrochemical erosion process that applies an external power source to shine and polish metallic workpieces. An electrolyte specially selected for the material – in this case silver alloy –

removes metal from the surface, visibly reducing roughness (e.g. from Ra μm 0.6 to 0.03). OTEC processes are reliable, and our silver alloy process is no exception. Electropolishing offers several advantages: it produces a smooth metallic sur-





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face without affecting the microstructure while improving corrosion resistance and enhancing shine. It also helps any additional electroplated coatings adhere more easily to the surface.

The EPAG Flex is suitable for processing not only silver but also gold (white, red or yellow). Its modular design allows for up to three individually controllable process tanks.

About OTEC Präzisionsfinish

OTEC GmbH Präzisionsfinish provides precision technology for achieving perfect surfaces. OTEC machines are used for smoothing, precision edge-rounding, polishing and deburring a wide variety of workpieces, with the aim of improving surface quality. OTEC has a global presence supported by international business partners. OTEC's comprehensive, market-leading technical expertise in developing the perfect interplay of machine and abrasive benefits a wide range of industries including tooling, medical devices, jewellery, and automotive and aerospace.

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