

SOLUTIONS FOR PRECISION SURFACES IN MEDICAL TECHNOLOGY

OTEC Präzisionsfinish GmbH combines Mass Finishing and Electro Finishing techniques to process surgical instruments, implants, prostheses, stents, impellers for heart pumps, and components made from titanium, CoCr, plastics, and 3D-printed materials. OTEC offers innovative surface treatment processes for medical technology and dental products, meeting the highest standards of precision, repeatability, and cost efficiency. By integrating mechanical methods such as stream finishing, drag finishing, and disc finishing with Electro Finishing, OTEC sets new benchmarks for quality and process reliability.

ADVANTAGES OF MASS FINISHING IN MEDICAL TECHNOLOGY

Mass Finishing brings numerous benefits, making it an essential method for surface processing of medical components:

- **Reproducible Precision**
Ensures consistent, homogeneous surface treatment for high quality.
- **Gentle Processing**
Avoids material deformation or microcracks that may occur with manual handling.
- **Efficient Deburring and Polishing**
Smoothly removes burrs and sharp edges, leaving even surfaces.
- **Optimized Surface Roughness (Ra values)**
Creates hygienic surfaces that minimize bacterial adhesion on implants or surgical tools.
- **Automation Potential**
Highly efficient for serial production with consistent results.
- **Suitable for Delicate Components**
Ideal for intricate designs and complex geometries such as bone screws or catheter components.

The smoothing of surfaces plays a critical role in reducing microscopic roughness, limiting contamination and germ adhesion. The biocompatibility of medical implants and instruments is preserved, as the process prevents material alterations. Removing burrs and surface defects also enhances corrosion resistance, minimizing the risk of degradation while improving the durability of components. Besides functional advantages, this method also offers aesthetic benefits. Homogeneous, polished surfaces improve the visual quality while fostering trust in medical devices. Automation further ensures consistent quality, reduces processing times, and minimizes manual reworking, enhancing efficiency and lowering production costs.



Hip prosthesis



Knieprothese

ADVANTAGES OF ELECTRO FINISHING IN MEDICAL TECHNOLOGY

Electro Finishing elevates surface quality to a new level, offering exceptional advantages:

- **Perfect Smoothing and High-Gloss Polishing**
Eliminates microscopic roughness, improving biocompatibility.
- **No Material Loss at Critical Points**
Enables selective processing without dimensional changes.
- **Retention of Cutting Performance**
Maintains the sharpness of surgical instruments.
- **No Abrasive Contact**
Prevents mechanical stress, making it ideal for sensitive components.
- **Access to Hard-to-Reach Areas**
Suitable for treating complex internal contours, such as in minimally invasive instruments.

Microscopically smooth surfaces improve hygiene by reducing contamination and ensuring easier cleaning. Enhanced corrosion resistance results from chemical passivation, which shields metal surfaces from oxidation and chemical damage. Simultaneously, high-gloss surfaces enhance perceived quality. By combining mechanical processing and electrofinishing, rework is minimized, waste is reduced, and overall production costs decrease, creating a clear economic advantage.

YOUR PARTNER FOR PERFECT SURFACES

OTEC combines Mass Finishing and Electro Finishing to provide optimal solutions for any surface requirement. We invite you to discover the precision and efficiency of our processes tailored to your specific needs. At our in-house Finishing Center, clients from around the world can process sample components to define the ideal method.

Contact us today to learn more about how our technologies can give you a competitive edge in medical technology.

OTEC Präzisionsfinish GmbH – Your Expert in Surface Precision.



Knee prosthesis in electrolyte

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