

AEROSPACE STREAM FINISHING SOLUTIONS AT A GLANCE

POLISHING, SMOOTHING, ROUNDING, DEBURRING

Highly efficient, ultra-reliable engineering is crucial in the aerospace industry, which is why manufacturers expect their components and production processes to meet such stringent requirements. Very low surface roughness values as well as rounding and/or deburring processes play a fundamental role in significantly reducing friction in the engine.



Read more

Requirements

- Homogeneous smoothing – “Super Finishing” – down to R_a 0.4 μm - 0.06 μm
- Extremely low process variation of 1 μm compared to other processes with \sim 5-10 μm
- Deburring and even rounding to a defined radius in one operation
- Only minimal changes to the workpiece geometry during processing

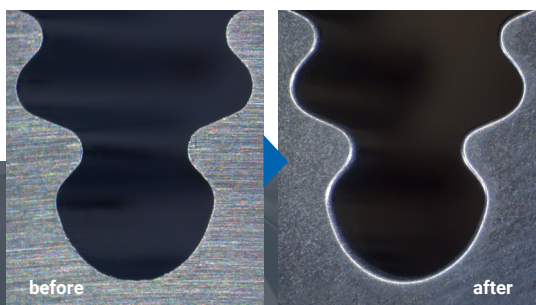
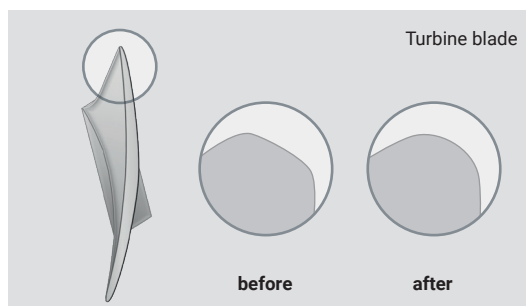
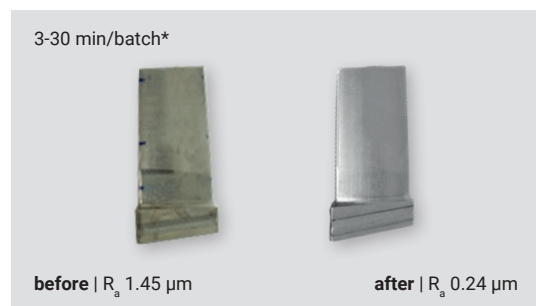
Stream finishing solution

- Higher efficiency due to less friction and increased service life of the component
- Applicable to milled, blasted and coated blades
- Pre- and post-processing (smoothing) of coated parts
- Simultaneous deburring while smoothing if necessary
- High output by clamping up to 5 parts simultaneously
- Maximum part dimensions: \varnothing 650 mm, l = 650 mm, m = 200 kg
- Surface levelling of milling grooves



Application examples with process time

* depending on the size of the component



Areas of application:

- Turbine and compressor blades
- Blisks and discs
- Servo valve components
- Ball bearing components
- Blade roots
- Actuator components
- Seal components
- Gear wheels



EXAMPLE: HIGHLY LOADED GEAR WHEELS

Requirements

- Homogeneous smoothing – “Super Finishing” – down to R_a 0.4 μm - 0.06 μm
- Deburring and rounding to a defined, even radius

OTEC solution

- No hazardous chemicals used
- Minimised risk of lubricant film breakage due to introduction of microscopic lubrication pockets in the surface
- Significantly improved surface isotropy
- Reduced roughness peaks: $R_{pk} < 0.1 \mu\text{m}$
- Less wear, no running-in required, longer oil service life
- Lower risk of micropitting
- The tiniest of geometries are achieved thanks to very fine abrasives
- Reduced process time: up to 24 times faster than chemically accelerated processes
- Cost-effective process: closed-loop operation, no cost-intensive disposal
- Fast and efficient: Deburring, edge rounding and smoothing in one step

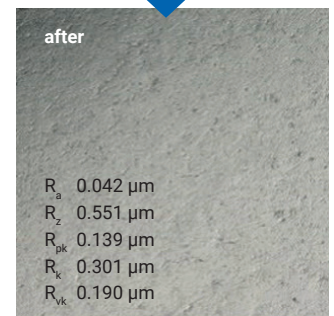
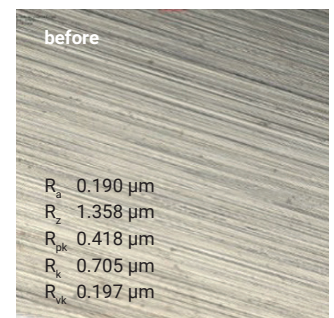
Try our OTEC Finishing Center. We develop custom solutions to suit your specific requirements.



Your contact person

Adrian Kofler (M. Eng.)
 Product & Business Development Manager
 + 49 7082 491120
 a.kofler@otec.de

Surface



As a trusted global partner for perfect surfaces, OTEC builds innovative finishing machines which set high standards and achieve perfect process reliability. Revolutionising manual processing applications results in precise and consistent quality in the shortest possible process time.

Smooth surfaces every time, defined rounding results, the removal of burrs and a perfect sheen are decisive competitive advantages in almost all industrial sectors. In particular that means saving energy as well as extending the service life and increasing the durability of parts.

OTEC machines with the “Made in Germany” seal of quality stand for dependable technology, high-quality workmanship, reliable operation and a long service life.



OTEC Präzisionsfinish GmbH
 Heinrich-Hertz-Straße 24
 75334 Straubenhardt-Conweiler
 Germany +49 7082 4911 20
 info@otec.de
 www.otec.de

