



**MINIMAL FRICTION.
REDUCED EMISSIONS.
LONGER RANGE.**

REDUCING FRICTION AND WEAR

The tribological properties of engine, motor and drivetrain component surfaces are a critical factor in friction and wear behaviour and have a huge impact on performance. Changing the surface topography and adapting the surface microstructure for optimum run-in are crucial for ensuring minimal friction and wear. OTEC's stream finishing process achieves precisely that, contributing to increased drivetrain efficiency in combustion engines and electric drives.

STREAM FINISHING PROCESS

- Workpieces are immersed as piece goods in a rotating process container filled with grinding or polishing granulate
- The workpiece rotates and is processed as the grinding or polishing granulate also moves around it
- Deburring, rounding and smoothing can be performed in a single process
- Minimal cycle times of 20 seconds to a few minutes
- Processes can be automated and consistently repeated



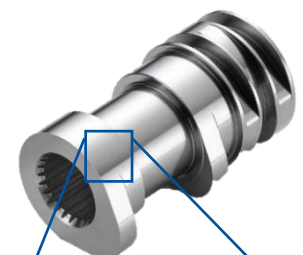
Unprocessed camshaft



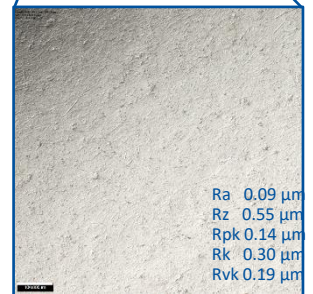
Surface topography



Fig. 1: Surface topography (schematic) – conventional grinding



Processed camshaft



Surface topography

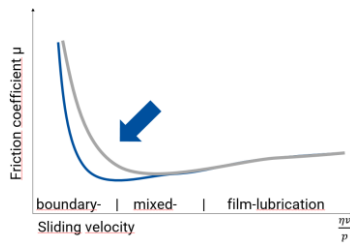


Fig. 2: Surface topography (schematic) – processed using OTEC stream finishing

ISOTROPIC SURFACES

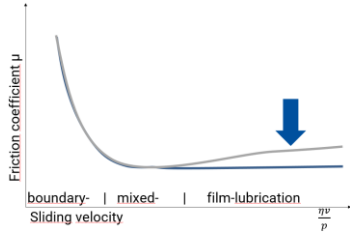
- Correction of grinding directionality
- Significantly reduced peak roughness
- Formation of closed microcavities that improve lubricating-film stability

ADDING VALUE WITH OTEC'S STREAM FINISHING PROCESS



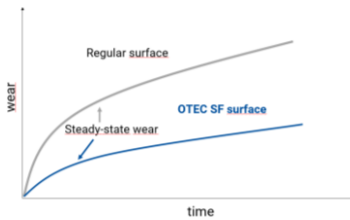
REDUCES FRICTION COEFFICIENT

- Lower roughness peaks prevent solid-to-solid contact where lubricating film is thin
- Improved lubricating-film stability and oil affinity



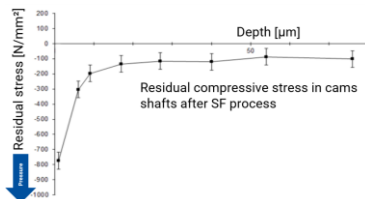
REDUCES FRICTION

- Reduced roughness allows use of low-viscosity oil
- Wear-resistant layer: good friction and wear behaviour even in mixed-friction scenarios



CUTS DOWN ON WEAR

- Pre-empting running-in and conditioning surfaces
- Stable wear corridor
- No additional run-in required



INCREASES INTERNAL COMPRESSIVE STRESS

- Internal compressive stresses on surfaces reduce friction wear
- Increased resistance to cyclical stress
- Improved critical notches

The additional benefits of stream finishing can be seen in the more streamlined production chain. Many preliminary stages of manufacturing, such as deburring and other finishing techniques, can often be replaced by stream finishing.

APPLICATION AREAS

Stream finishing can be used to process cylindrical or near-cylindrical components – mainly the shell surface. With a wide choice of grinding and polishing granulates and a host of machine parameter settings, OTEC can provide the perfect process for almost any workpiece including gear wheels, crankshafts, camshafts, valves, spindle drives and other gear-type components.

OUR PROCESS FOR YOUR WORKPIECE

Our OTEC Finishing Center will gladly develop a process specially tailored to your workpiece and application. Arrange an appointment today to experience your sample processing.

CONTACT DETAILS



Nicolas Petri
+ 49 (0) 70 82 - 49 11 20
n.petri@otec.de



OTEC Präzisionsfinish GmbH
Heinrich-Hertz-Straße 24
75334 Straubenhardt, Deutschland