

AEROSPACE | SMOOTHING

Streamfinishing performance at a glance

AEROSPACE TURBINE AND COMPRESSOR BLADE APPLICATIONS

- Homogeneous smoothing - "Super Finishing" - down to R_a 0.4 μm ... 0.06 μm
- Only minimal change to blades' shape
- Rounding of the leading and trailing edge to a defined radius

ADVANTAGES

- Higher Efficiency due to less friction
- Increased blade service life
- Applicable to coated blades
 - Pre and processing (smoothing) of PVD and CVD coatings
 - Post processing (smoothing) of TBC coatings
- If applicable, simultaneous deburring while smoothing
- High output by clamping up to 5 workpieces simultaneously
- Maximum part dimensions*: \varnothing 650 mm, l = 650 mm, m = 200 kg

*) longer parts on request

More information



APPLICATION EXAMPLES

before

R_a 1.45 μm



after

R_a 0.24 μm



process time 12 min / cycle

before

R_a 0.54 μm



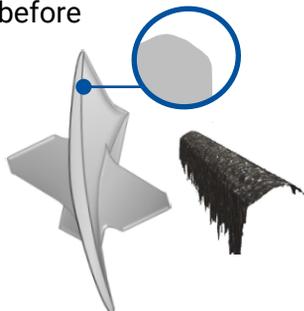
after

R_a 0.06 μm

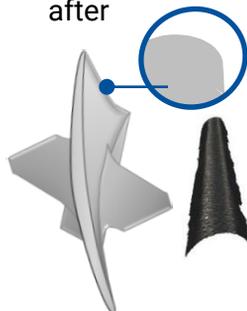


process time 2 min / cycle

before



after



before

R_a 3.45 μm



after

R_a 0.20 μm



process time 100 min / cycle

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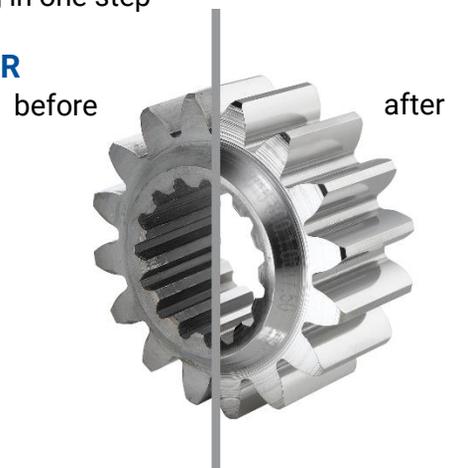
HIGLY LOADED GEAR APPLICATIONS

- Homogeneous smoothing - "Super Finishing" - down to R_a 0.4 μm ... 0.06 μm
- Deburring, Edge break and rounding to a defined radius

ADVANTAGES

- Extremely low process variation (1 μm) compared to other processes (~5-10 μm)
- No handling of hazardous chemicals
- Minimized risk of lubricant film breakage due to introduction of microscopic lubrication pockets
- Significant improved surface isotropy
- Reduced roughness peaks ($Rpk < 0.1 \mu\text{m}$)
- Less wear, no running-in required, longer oil life
- Low risk of micro-pitting
- Reaching into smallest geometries, thanks to very fine media
- Enormously reduced process time (up to 24 times faster)
- Cost-effective process: thanks to closed-loop operation and no cost-intensive disposal
- Fast & efficient: deburring, edge rounding & smoothing in one step

EXAMPLE OF PROCESSING A HIGHLY LOADED GEAR



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AEROSPACE | ROUNDING, DEBURRING

Streamfinishing performance at a glance

TURBINE BLADE ROOT AND TURBINE DISK APPLICATIONS

- Deburring, Edge break and rounding to a defined radius ($r = 70 \mu\text{m} \dots 500 \mu\text{m}$)
- Homogeneous smoothing - "Super Finishing" - down to $Ra 0.4 \mu\text{m} \dots 0.06 \mu\text{m}$

More information

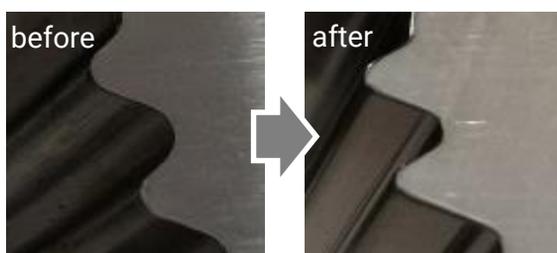
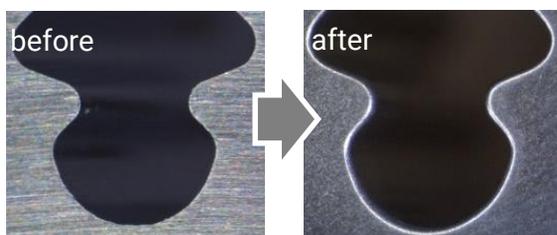


ADVANTAGES

- Negligible change to roots' or disks' shape
- For roots, the complete airfoil will be masked during process
- Edges can be rounded to a defined radius
- Extremely repeatable results
- High output for blades by clamping up to 5 blades simultaneously
- Finishing process can be easily automated
- Maximum part dimensions*: $\varnothing 650 \text{ mm}, l = 650 \text{ mm}, m = 200 \text{ kg}$

*) longer parts on request

EXAMPLE OF PROCESSING TURBINE BLADE ROOTS AND TURBINE DISKS



AEROSPACE | ROUNDING, DEBURRING

Streamfinishing performance at a glance

VARIOUS DEBURRING & EDGE ROUNDING APPLICATIONS

- Deburring
- Edge break and rounding

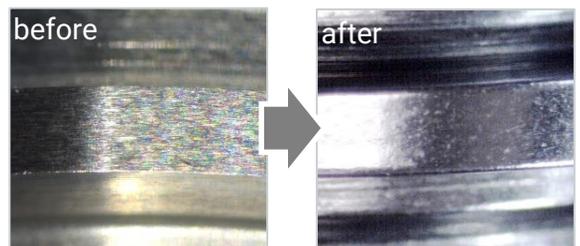
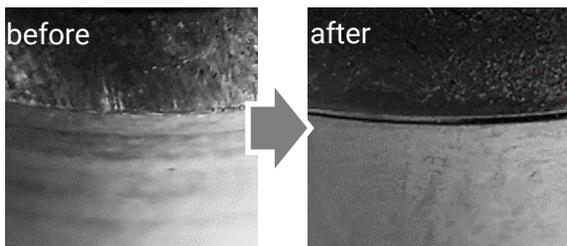
ADVANTAGES

- Negligible change to parts shape
- Edges can be rounded to a defined radius
- Extremely repeatable results
- Short process times from 30 sec. to 10 min
- Simultaneous processing of several parts
- Finishing process can be easily automated
- Maximum part dimensions*: Ø 650 mm, l = 650 mm, m= 200 kg

*) longer parts on request



EXAMPLE OF DEBURRING & EDGE ROUNDING APPLICATIONS



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