

# ROLLER BURNISHING TOOLS

## ▶ API GROOVES

MICRO HARDENING AND BURNISHING TOOLS



**SOLUTIONS FOR COST-EFFECTIVE AND HIGH QUALITY MACHINING OF OIL AND GAS SEAL RING GROOVES**

**SURFACE MICRO HARDENING > LONGER LASTING  
LOW Ra > BETTER SEALING**



▶ Seal ring grooves are critical features on many oil and gas components and require micro hardening on seal surface and a high-quality surface finish. The high component value and complexity make process security essential

### ▶ MICRO HARDENING

Inconel 625	Before 224 HB > After 300 HB	( 34% increase in hardness)*
Duplex F53	Before 275 HB > After 340 HB	( 24% increase in hardness)*
AISI316	Before 151 HB > After 330 HB	(119% increase in hardness)*
A350 LF2	Before 155 HB > After 230 HB	( 48% increase in hardness)*

▶ Elimination of tool marks and minor surface imperfections

Before Burnishing Ra2.0 µm  
After Burnishing Ra0.1-0.2 µm

▶ Fast production, at a low cost.. in seconds!

100~150 m/min speed  
0.05 – 0.30 mm/rev feed

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**API TOOL SET** - 2 tools one CNC setup, many different API seal ring diameters



DOWN SIDE OF THE GROOVES



UP SIDE OF THE GROOVES

### Process advantages and benefits of burnishing

**Harder surface** - During the extremely fast cycle time for part sizing and finishing, the work surface is also being workhardened and straightened. Surface hardness increases from 20% to 120% with a penetration of 0.2 to 0.75 mm. The low micro finish combined with a hardened and denser surface substantially increases part wear life and corrosion resistance, the added strength improves fatigue resistance, decreasing part failures.

**Improved Surface Finish** - The burnishing tool works metal without cutting or abrading the surface. It moves the metal, smoothing and compressing the peaks into the valleys, generating a dense and uniform surface – friction free and leaving no feathered edges.

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