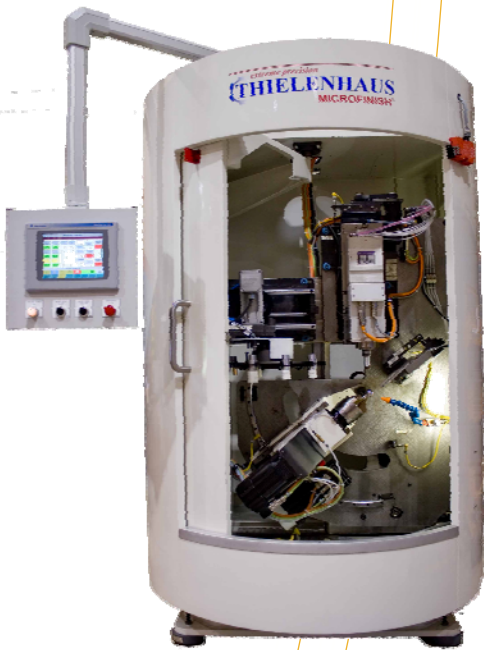
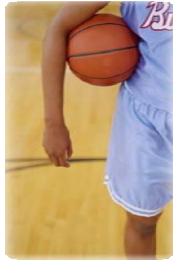


EXTENDED LIFE FOR HIP JOINTS



EndoStar
Innovation in High-Precision
Machining of
Hip Joint Components

extreme precision

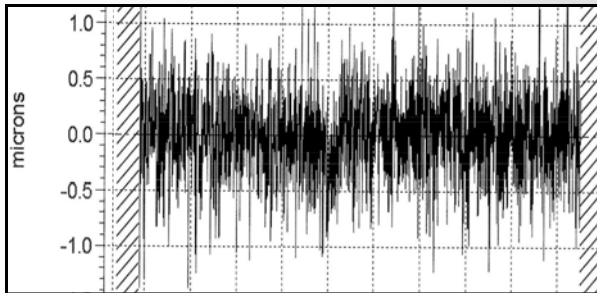
THIELENHAUS
MICROFINISH®

EndoStar V-350

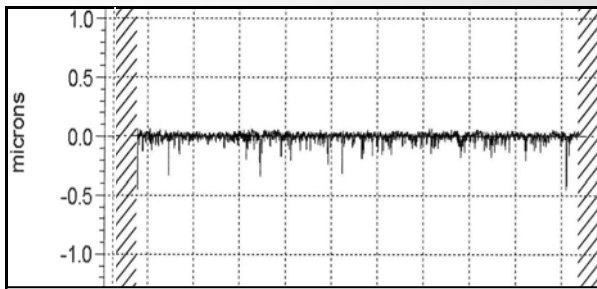
Vertical Design for Flexible and Highly Productive Microfinishing of Hip Joint Components

1. Extended component life through:

- ✓ Improved Surface Finish
- ✓ Improved Sphericity



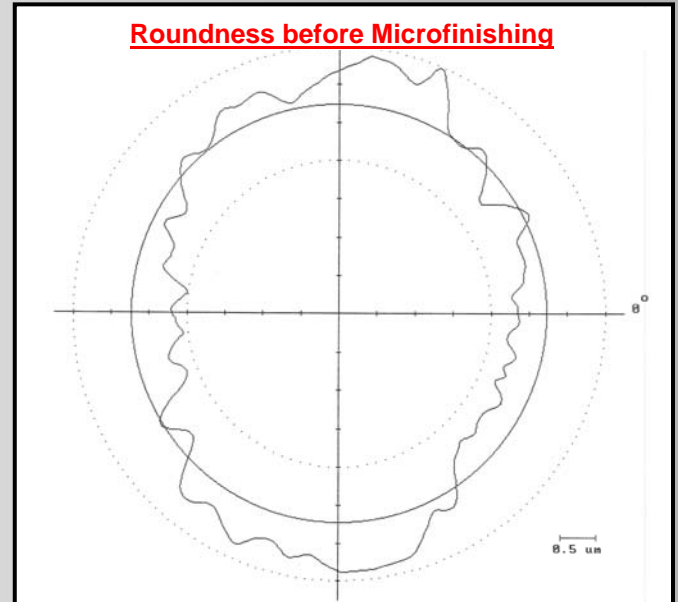
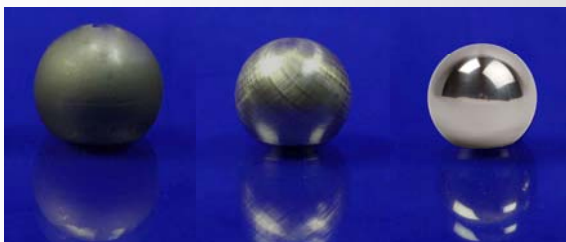
Surface finish before Microfinishing



Surface finish after Microfinishing

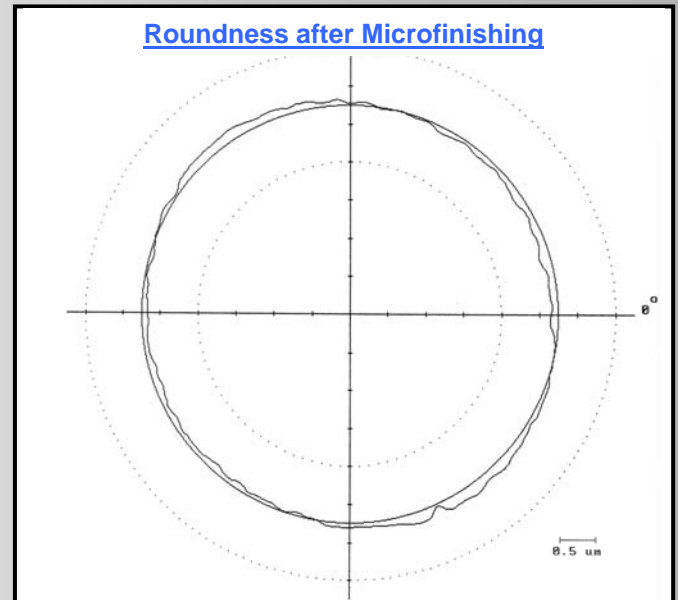
2. Machine Productivity:

- ✓ 40 % Cycle Time Reduction



LS Roundness Results

○	1.47 um	Meas. mode	External
E	0.15 um	Z Height	20.0 mm
∠	252.8 deg	Filter	1-50 upr Gauss.
↗	1.49 um	Profile	Complete

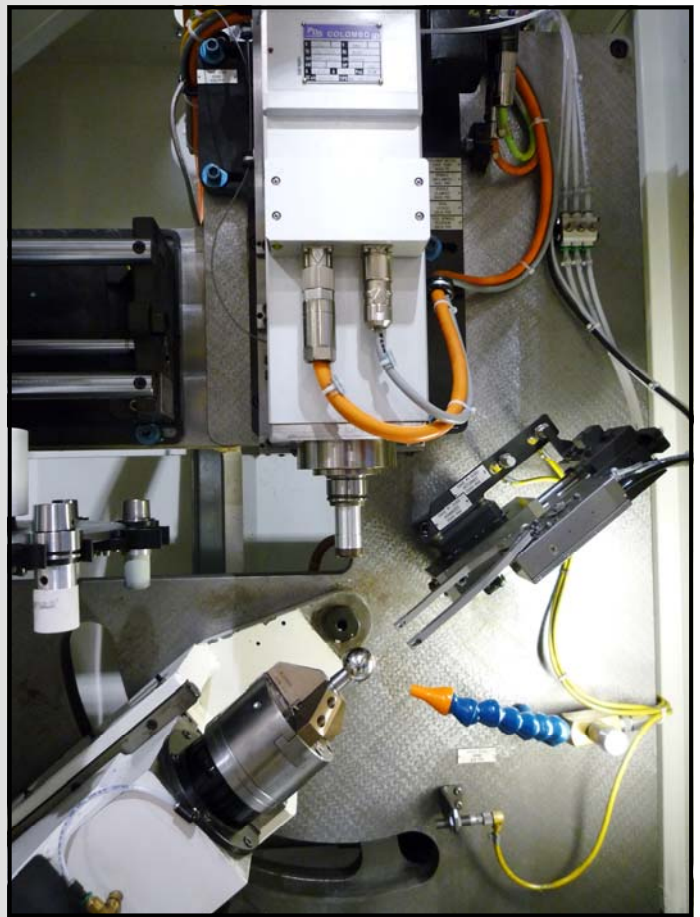


LS Roundness Results

○	0.30 um	Meas. mode	External
E	0.36 um	Z Height	20.0 mm
∠	129.0 deg	Filter	1-50 upr Gauss.
↗	0.85 um	Profile	Complete

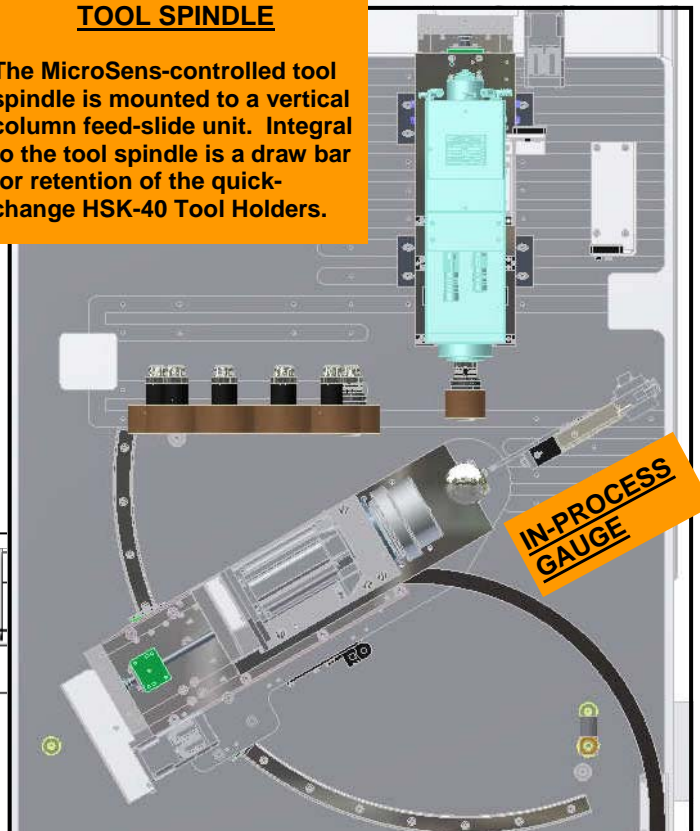
HIGHLIGHTS

- Greatly improves micro and macro geometry (surface finish and sphericity).
- Enables machining of various workpieces composed of all types of metals, as well as ceramics.
- Provides excellent up-time and component access.
- Reduces space requirements through compact construction.
- Allows rapid multi-step machining through use of a tool-changer with a ten-tool magazine.
- Increases productivity due to minimum cycle times and simple change-over.
- Provides a high bearing ratio and reduced specific bearing load.
- Prevents the generation of an amorphous layer so that the sound base material offers its full hardness and load capacity.
- Increases the amount of useful compressive stress in the workpiece edge zone.
- Enables CBN and diamond-abrasive machining through improved machine rigidity.
- Results in consistent, unsurpassed workpiece quality.



TOOL SPINDLE

The MicroSens-controlled tool spindle is mounted to a vertical column feed-slide unit. Integral to the tool spindle is a draw bar for retention of the quick-change HSK-40 Tool Holders.



WORK SPINDLE

The vertical work spindle is mounted on a swivel plate, which can be programmed to provide angular adjustment of up to 90 degrees.

TECHNICAL DATA

Work Spindle Speed

1-2,000 RPM

Work Spindle Slide Travel

150 mm

Work Spindle Angular Adjust

0-90 Degrees

Tool Spindle Speed

1-15,000 RPM

Tool Slide Travel

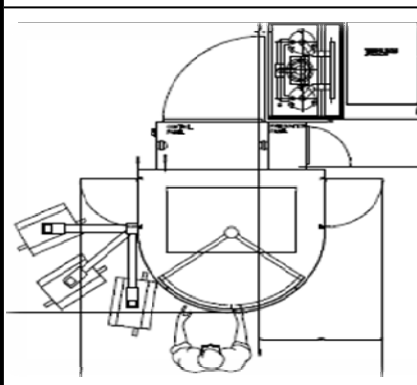
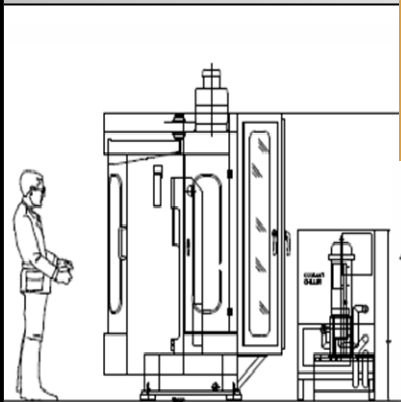
150 mm

Tool Changer Capacity

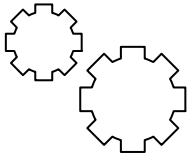
10 Tools

Maximum Tool Diameter

90 mm



*100 Years of High -Precision Machining Experience and
more than 50 Years of Experience Building Microfinish
Machines for Hip-Joint Components!*



extreme precision

THIELENHAUS
MICROFINISH®



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