



CenterStar

Microfinish-Technology for all Types of Shafts

modularly extensible – high precision – economical

CenterStar Cube

CenterStar 100

CenterStar 200

CenterStar 400



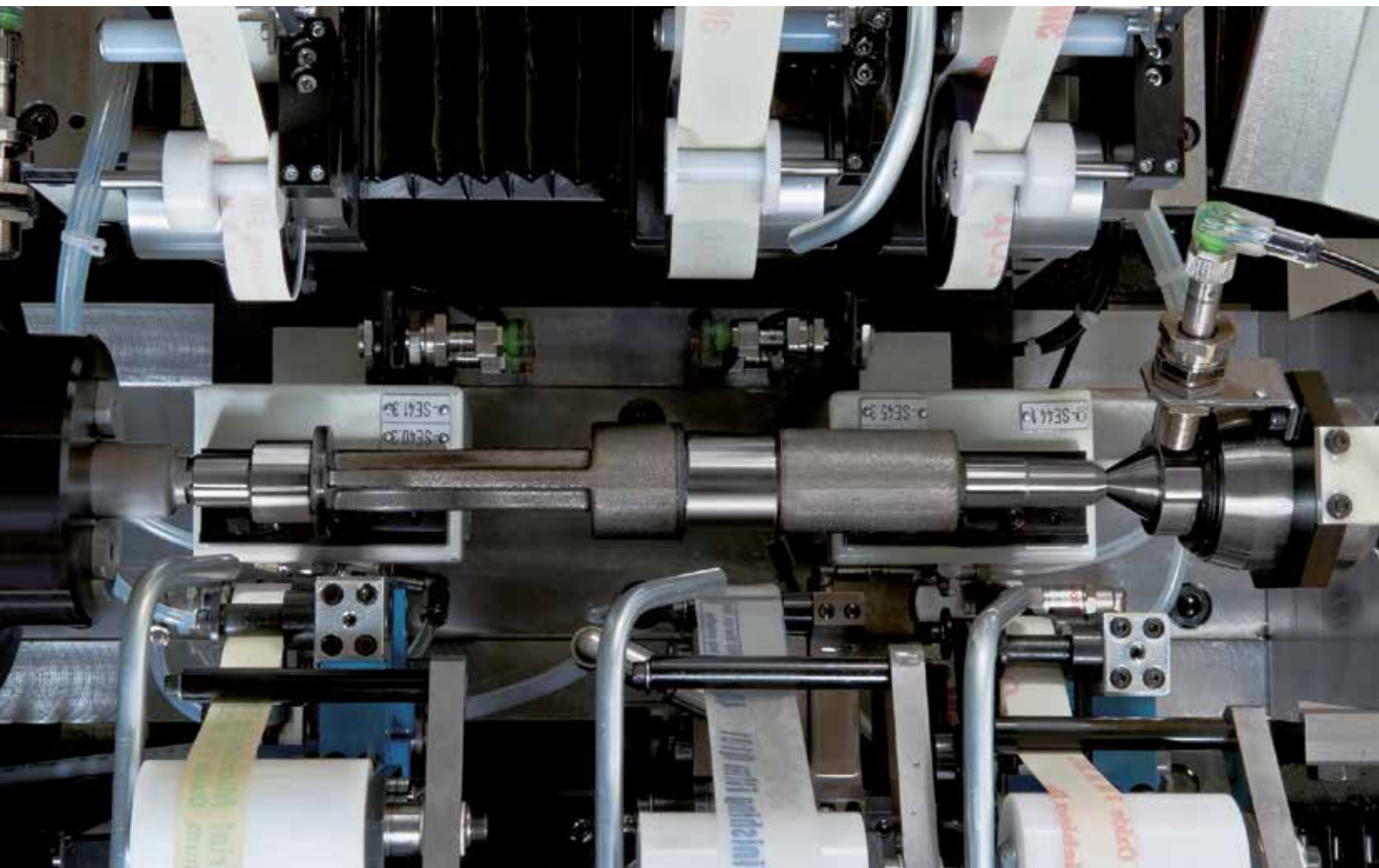
CENTERSTAR SERIES – FLEXIBLE MACHINING OF ALL TYPES OF SHAFTS TO EXTREME PRECISION

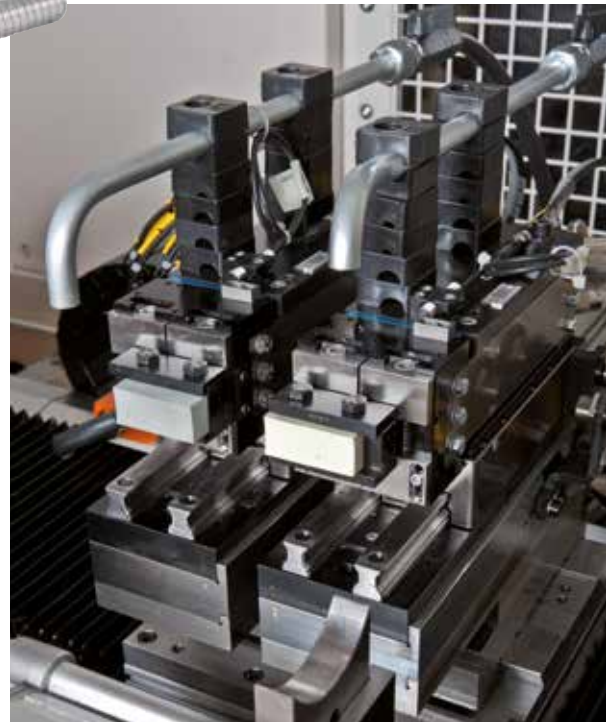
ADVANTAGES

- Modular machine concept – designed for extreme flexibility and best accessibility with a low footprint
- The low price per workpiece results from the high process stability and the short cycle time
- Various machining processes may be integrated into one machine, e.g. stone, tape, CAB, and flat finishing as well as brush deburring
- Workpieces made of different materials, e.g. steel, cast iron, hard metal, as well as glass and ceramics

MODULARLY EXTENSIBLE / HIGH PRECISION / ECONOMICAL FOR

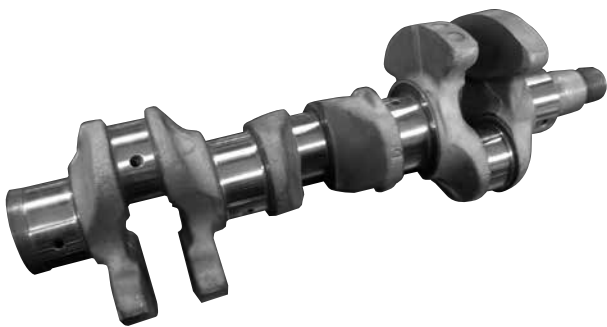
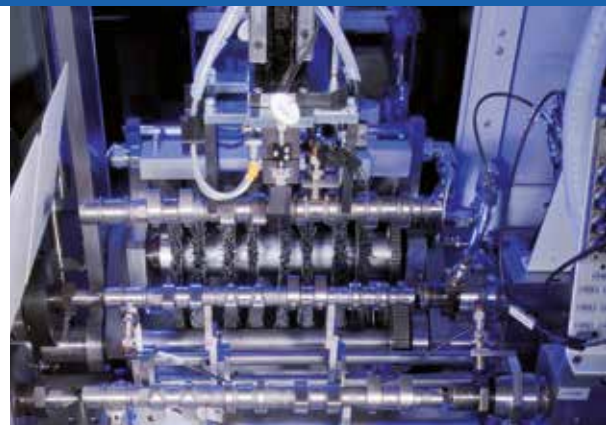
- Automotive
- Antifriction bearings
- Medical engineering
- Hydraulics and pneumatics
- Camshafts, balance shafts, drive shafts, crankshafts
- Pump gears
- Tappets
- Tooth racks





TECHNICAL DATA

Machining stations	1 – 2
Machining units	1 – 10
Workpiece length (mm)	800 – 2,000
Workpiece diameter (mm)	300
NC-axes (pcs)	0 – 7
Spindle speed (rpm)	max. 3,000
Footprint (mm)	2,300 x 1,300



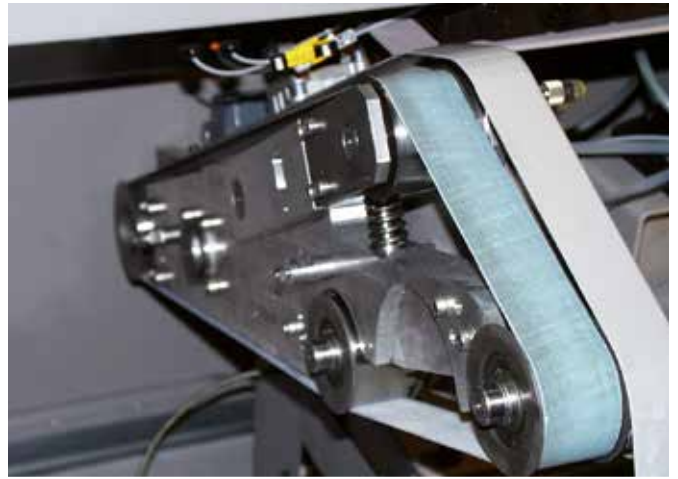
EXAMPLE PUMPSHAFT

- Continuous tape feed
- 4 tape finishing units



EXAMPLE CRANKSHAFT

- High cutting speed through endless belt
- 1 CAB finishing unit



EXAMPLE TRUCK CAMSHAFT

- Up to 9 tape finishing units
- Automatic brush deburring



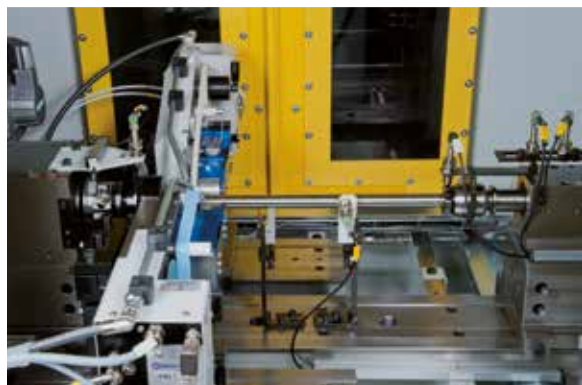
EXAMPLE COMPOSITE CAMSHAFT

- Process combination
- 1 flat finishing unit
- 1 tape finishing unit



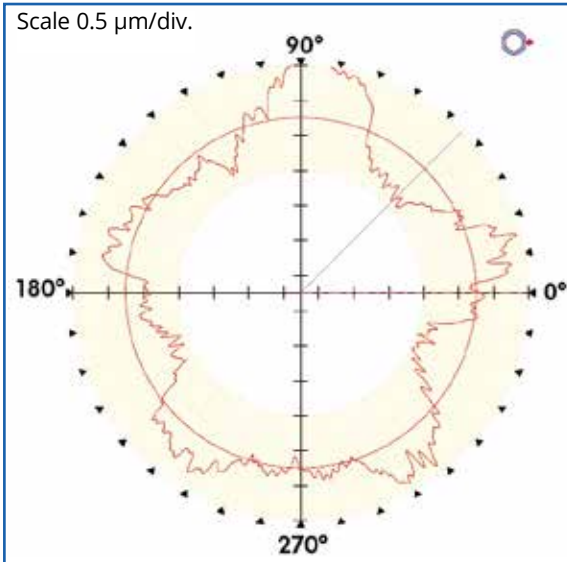
EXAMPLE GEARSHAFT

- Optimum geometry (Fourier)
- Up to 10 stone finishing units

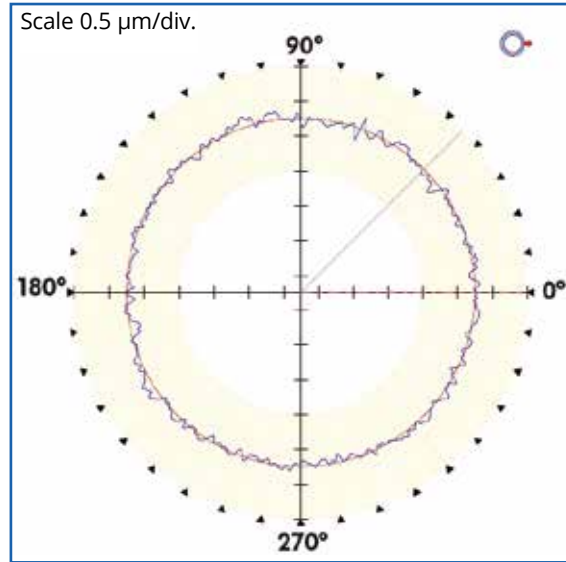


WORKPIECE GEOMETRY

- cylindrical ■ conical
- crowned ■ spherical



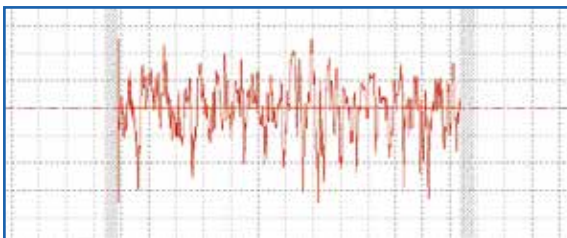
BEFORE MICROFINISH
RONt 1.8 μm



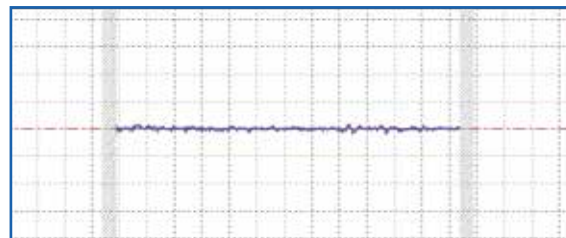
AFTER MICROFINISH
RONt 0.35 μm

SURFACE QUALITIES

- Roundness ■ Waviness
- Roughness ■ Evenness
- Cylindricity ■ Parallelism



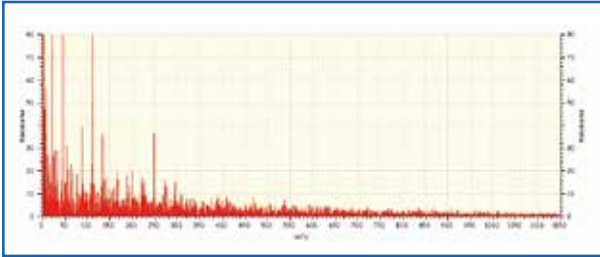
BEFORE MICROFINISH
Rz ~2.0 μm
Tp < 20 % Cref = 5 %



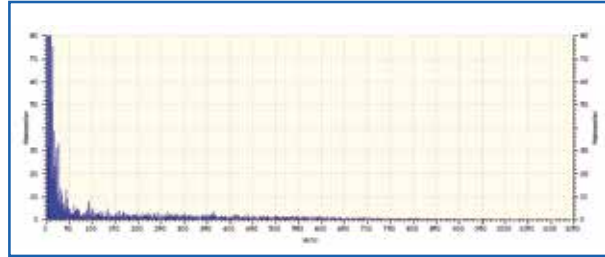
AFTER MICROFINISH
Rz 0.3 μm
Tp < 99 % Cref = 5 %

WAVINESS ANALYSIS (FOURIER)

- Needle bearing
- Sliding seat



BEFORE MICROFINISH



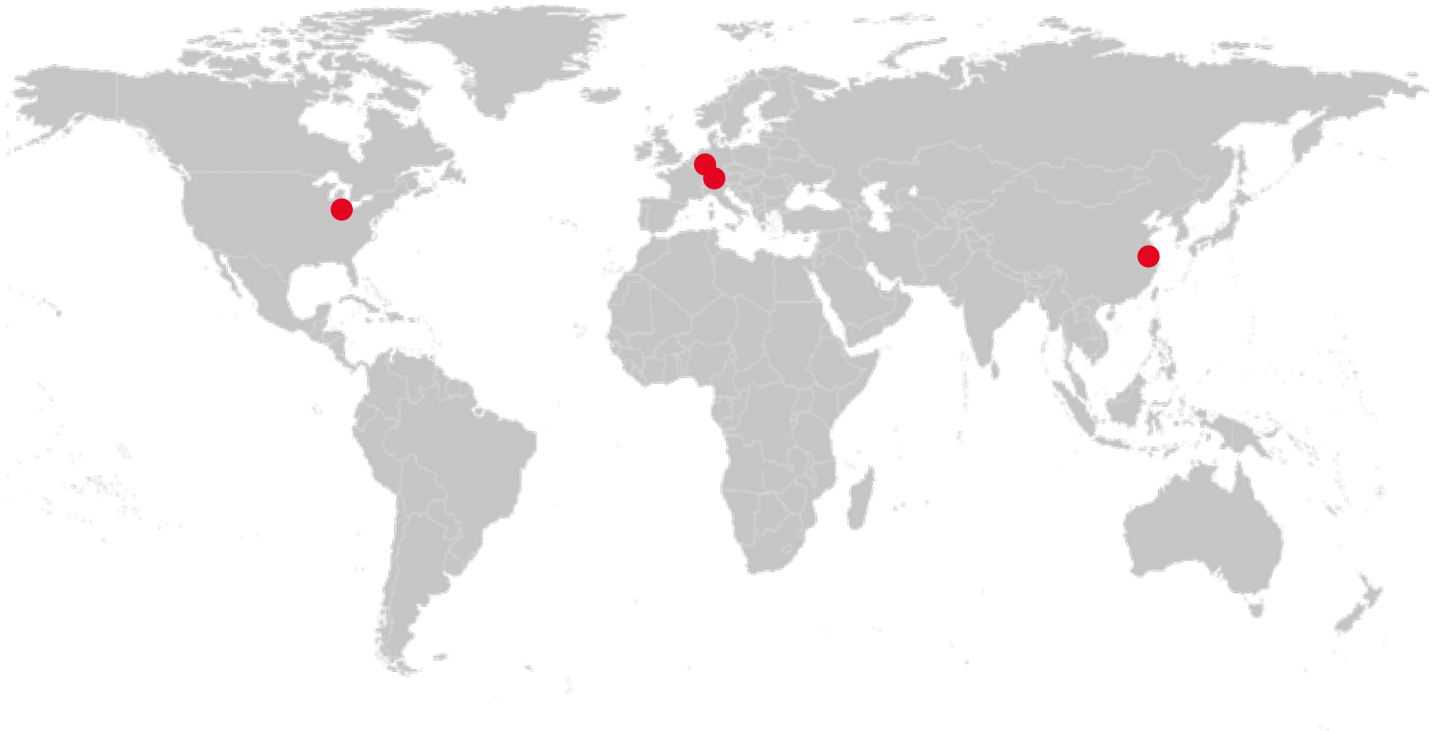
AFTER MICROFINISH

AUTOMATION

The CenterStar series is designed for all kinds of loading and unloading concepts starting with manual feed via cycled belts and gantry loaders up to high-end robot cells.



The Power of Precision.



THIELENHAUS TECHNOLOGIES



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