

moore tool company

The Moore Tool Company, a leader in precision machine tool design and manufacture, produces ultra-precision drum lathes for the development and production of large area microstructured surfaces.

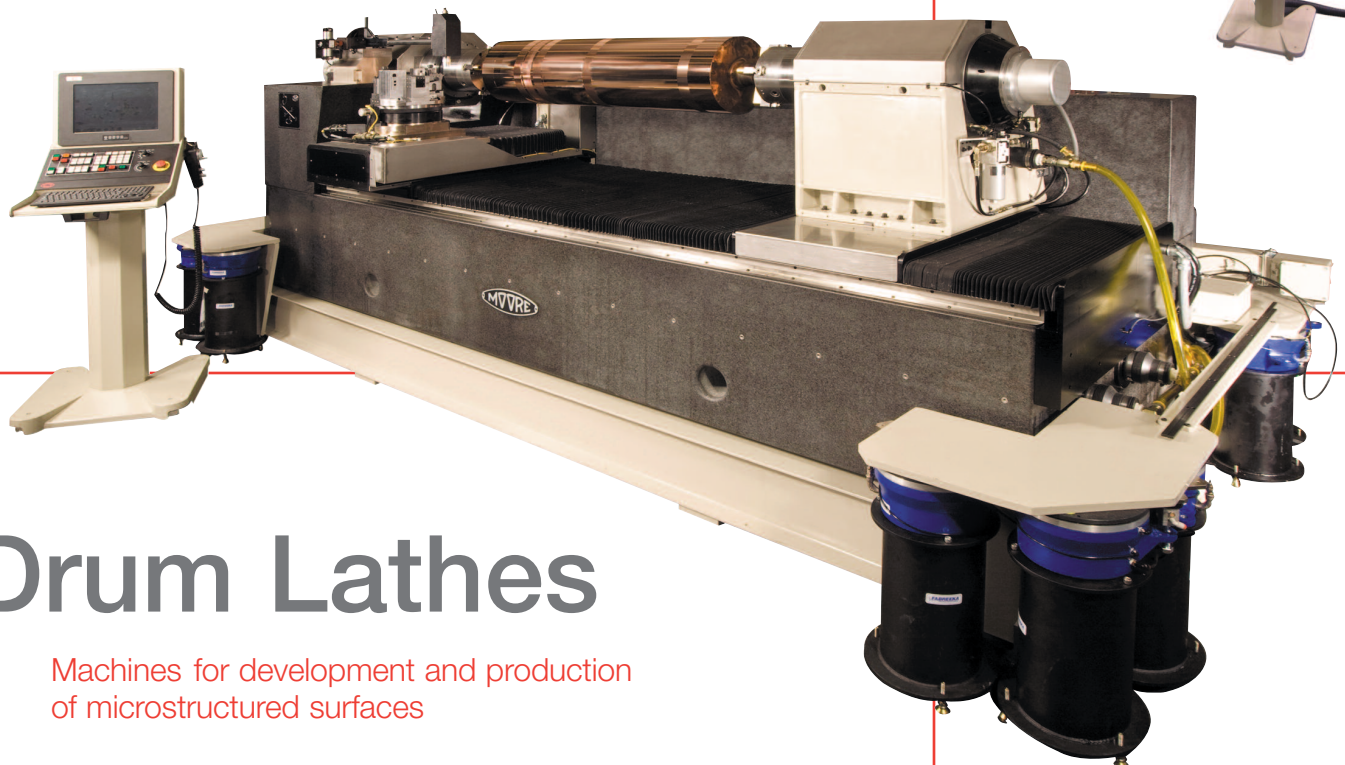
Unmatched in performance, these ultra-precision lathes are capable of directly machining optical quality surfaces and complex microstructures on the surface of a large drum.

Combining proven technology with extensive experience in single point diamond turning, ultra-precision motion control systems, and precision machining, our engineers have designed a

machine that can be configured to your specific applications. Additional options are available to allow greater flexibility in custom configurations.

Features

- Massive granite machine base
- Vibration isolation
- PC-based control system designed for ultra-precision machining
- Oil hydrostatic bearings
- Precision linear motor drives
- Axes configured for ease of operation
- Additional options available



Drum Lathes

Machines for development and production of microstructured surfaces

specifications

Drum

- 2 meter or larger maximum face width
- 550 mm maximum drum diameter
- Drum weight:
 - Vertical, up to 1000 kg vertical
 - Horizontal, 2000 kg horizontal to 3000 kg

Machine Base

- Massive granite structure
- Vibration isolation:
 - Vertical, passive
 - Horizontal, self-leveling

Linear Axes

- Oil hydrostatic bearings
- Precision linear motor drives
- Precision scales with <1 nm feed-back resolution
- $\pm 0.5 \mu\text{m}$ bi-directional displacement repeatability
- < 2 μm straightness full travel

Spindles

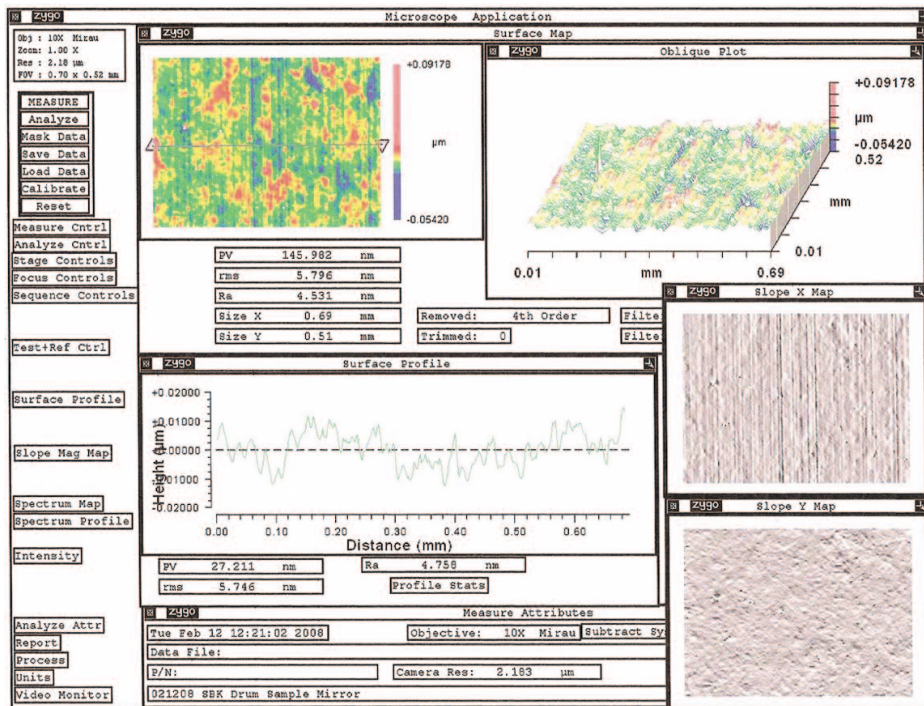
- Vertical: Professional Instruments 10" air bearing headstock and 4" EPIC bearing tailstock, 0 – 1000 rpm. Average and asynchronous radial error motions <25 nm
- Horizontal: Oil hydrostatic bearings headstock and tailstock, 0 – 1000 rpm. Average and asynchronous radial error motions <75 nm
- ± 1 arc second positioning repeatability

Control System

- PC-based control system designed specifically for ultra-precision machine tools
- 1 nm programming resolution

Accessories

- Oil hydrostatic rotary tooling axis
- Multiple fast tool servo designs
- Optical tool setting
- Air or oil shower for temperature control
- Work spindle balance sensor system
- Video system for on-machine drum inspection



Typical Surface Finish Results



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