

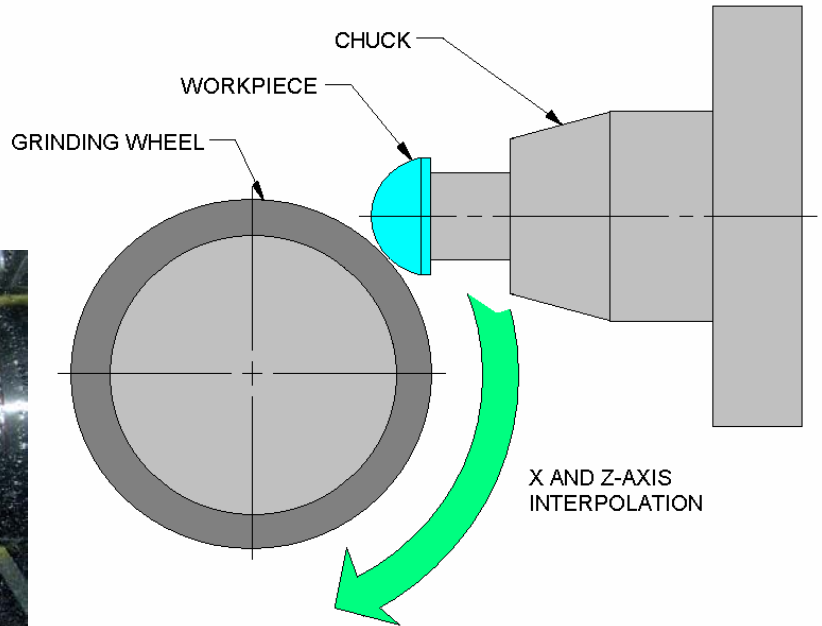
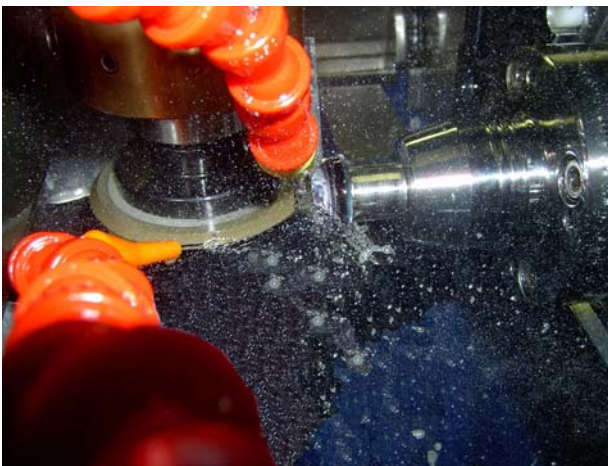
Grind Spherical or Aspherical Precision Optics

MACHINE: Accura MicroTol™

WORKPIECE: Lens

OPERATION: Grind spherical surface.

MATERIAL: BK7 Optical Glass



OBJECTIVE: To grind the spherical surface of precision optics lenses maintaining print tolerances and required production.

DESCRIPTION: The workpiece was held with an expanding sleeve hydraulic chuck, gripping on the stem and locating on the bottom face. The chuck and workpiece were supported by Accura's proprietary hydrostatic work spindle. X and Z-axis interpolation was used to grind the spherical radius with a resin-bond diamond wheel on a 15,000 RPM air-bearing wheel spindle. The workpiece was manually loaded and unloaded.

NOTES: With available programming resolution of 1 nm, the MicroTol™'s precise motion control system brings the grinding of spheres and aspheres to a new level of accuracy. The MicroTol™ is a highly configurable platform that can be adapted to many precision optics applications. The machine can be set up for grinding or diamond turning. It can also be arranged to perform both operations sequentially. The MicroTol™ can be arranged for manual load, or it can be fully automated. Other options include coolant filtration system and mist collector.

RESULTS:

CYCLE TIME PER PIECE	Approximately 2 minutes
SPHERICAL FIGURE ERROR	Less than 1 μm
SURFACE FINISH	30 nm Ra