

## Grind Bore in Cobalt-Molybdenum Actuator Rods

**MACHINE:** Accura 1210G

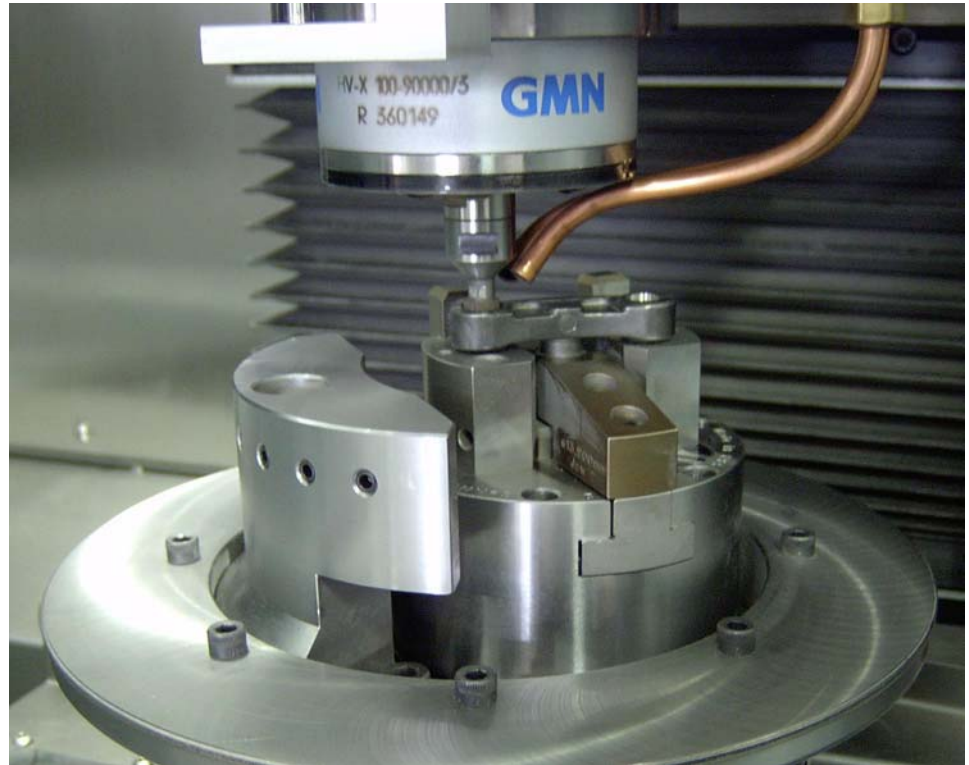
**WORKPIECE:** Turbocharger  
Actuator Rod

**OPERATION:** Grind 9.025 mm  
diameter bore

**MATERIAL:** Tribaloy T400



*Workpiece (1/2 Scale Approx.)*



**OBJECTIVE:** To grind 9.025mm diameter bore in extremely tough, Tribaloy T400 actuator rods maintaining print tolerances and required production.

**DESCRIPTION:** Hold the workpiece in an offset, two-jaw, sliding-jaw chuck. Chuck on the 14mm diameter shaft. Locate on the end of the shaft. Plunge/oscillate grind the 9.025mm diameter bore with a full length vit-bond CBN wheel on a 90,000 RPM wheel spindle. Dress the wheel with a diamond dressing disk mounted on chuck adaptor. Manually load and unload the workpiece. Remove 0.75mm stock on diameter.

**NOTES:** The counterbalanced, offset chuck was custom designed for this application. It grips on the shaft which is 22mm off-center from the bore. Maximum operating speed is 2,000 RPM. The work spindle drive stops the chuck in the same position every time for loading and unloading. The toughness of the material calls for high quill stiffness, and high wheel spindle torque. This Accura 1210G was built "automation ready." An automated parts handling system with robot loader can be added at a later date.

### TEST RESULTS:

CYCLE TIME PER PIECE	30 seconds including manual load and unload
HOLE SIZE TOLERANCE	0.05mm, 2.00 Cp
HOLE TRUE POSITION	0.2mm, 7.75 Cpk
PARALLELISM BORE TO SHAFT	0.025mm, 2.15 Cpk