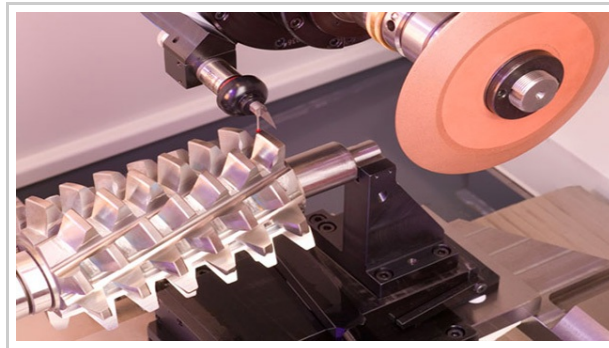


# Tool & Cutter Grinders

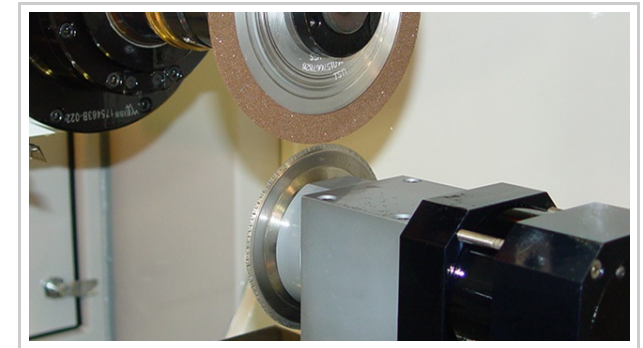
## PTG-1L Hob and Shaper Grinding Solutions



5-Axis CNC Tool and Cutter Grinder



Integrated Wheel and Part Probing Capabilities



Onboard grinding wheel dressing

### Key Features

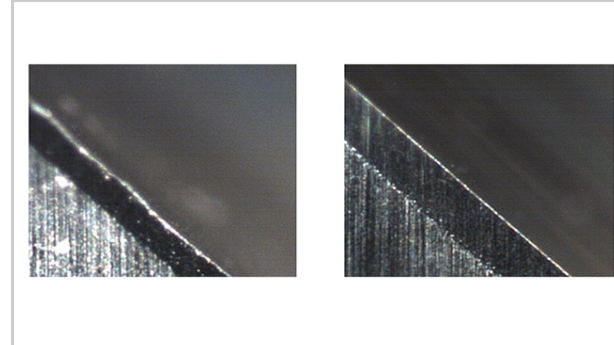
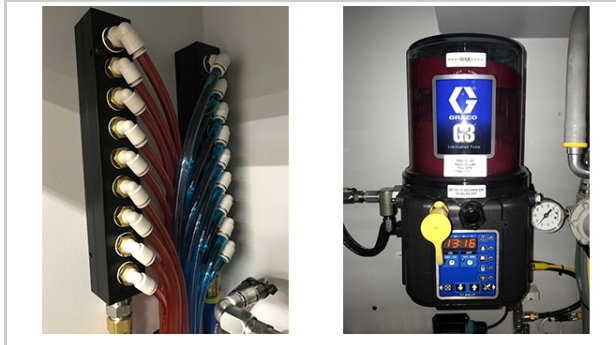
- 5-Axis machine featuring NUM control and NUMROTO software
- Machine is ideal for:
  - Repetitive jobs without changes in setup
  - Manufacturing and re-sharpening of straight and spiral gash hobs
  - Dish, shank, and helical gear shaper cutters
- 10 HP HSK direct drive grinding spindle
- Hob capacity of 8" OD x 10" OAL
- Up to 250 mm diameter shaper cutters



### Results

- AAA accuracy achieved on sharpening hobs
- Surface finishes below 0.1 um Ra

# Latest Technology Tool & Cutter Grinders



Ball Screw Technology (left) and  
 Star LinearTechnology (right)

- Linear Motors (X, Y, Z)
- Direct Drive Rotary Axis (C, B)
- Closed Loop Chiller
- Mineral Cast Base and Column
- Premium Scales and Motors
- Flexium+ Control

## Closed Loop Cooling

Powerful machines make heat. Increased motor temperature means decreased power and life. Every motor and axis is liquid cooled (9 total loops). A 20K BTU glycol chiller helps stabilize the entire machine and grinding process. Once you have used an actively cooled linear machine, you'll never go back.

## Automatic Grease Unit

With only the trucks/rails needing lubrication we are able to use grease not oil. Grease stays on the bearings and unlike oil doesn't contaminate the grinding coolant.

## Linear and Direct Drive Motors

### Linear Motor Benefits:

- No ball screw wear or backlash
- Better finishes
- Better cutting edge integrity
- Faster rapid traverse speeds

### Direct Drive Axis Benefits:

- No worm gear wear or backlash
- Better finishes
- Better radius transitions

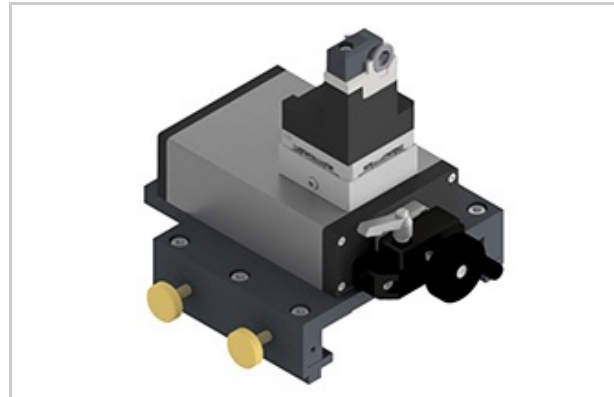
# Tool Support Systems

## Tool & Cutter Grinders



### Runout Minimizer

- Rail Mounted Hydraulic Pop Up with Stabilizing Clamp Down Finger.
- Fine Adjustment for Precision Height Setting
- Design to Work with Tools Less than 12 mm in Diameter.



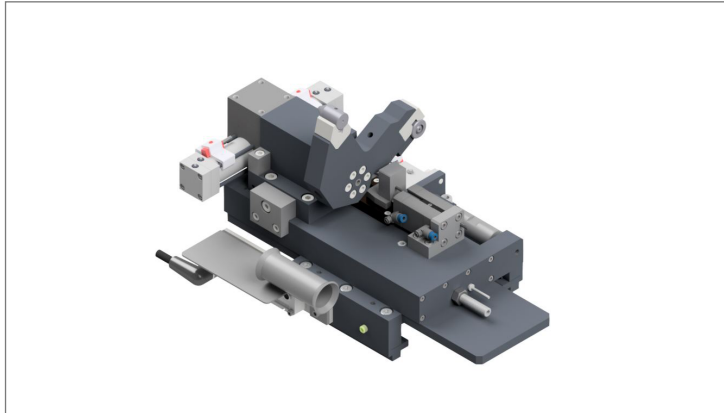
### Precision Tail Center

- Rail Mounted Quick Change Center Tail Center Assembly.
- Quick Change for Full and Half Bushings Available.
- Screw Actuated For Fine Positioning



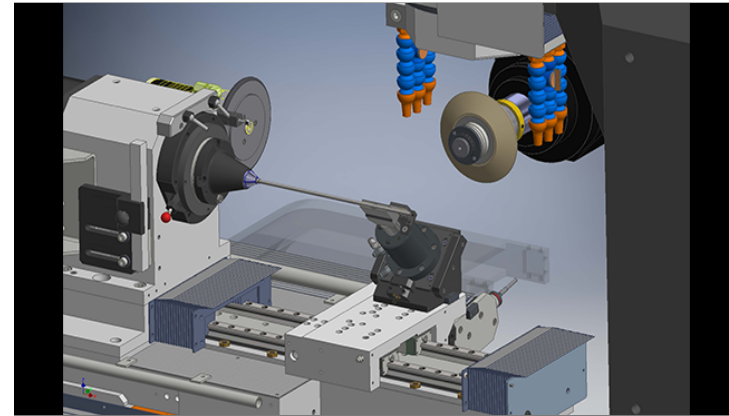
### Pop Up Steady

- Rail Mounted Hydraulic Pop Up Steady for Tool Support During Fluting.
- Fine Adjustment for Precision Height Setting.
- Adjustment for Setting Bushing Axis Inline with Headstock Axis.
- 25 mm of Retract Down Stroke for Use with Automation
- "J" and "U" Bushings Standard



## Auto Steady Stock

- Tail center and bushing mounted on a single toggle arm
- Pneumatically flip between the two settings
- Slides along the tool axis for engagement and disengagement
- Middle stop position for load and unload for use with automation

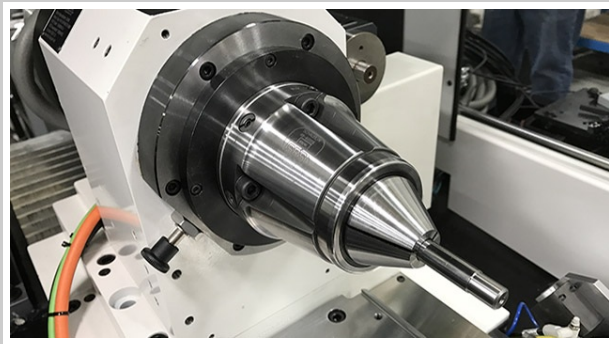


## Hydro Pop Up

- Intended for helical fluting with 1A1/1V1 (typical) wheel shapes (unlike an Arobotech).
- Design allows the wheel to pass through the steady rest while fluting and K-landing
- Height adjustable
- Supports tools from .125" - 1.000" with only 4 bushings
- Compatible with W-Axis stage

# Tool & Cutter Grinders

## Work Holding Solutions



Schaublin Clamping Systems

### Schaublin

- W20 (1-20 mm)
- W25 (1-25.4 mm)
- B32 (3-32 mm)
- SRS (3-32 mm)

### Schunk

- Tendo (3-25.4 mm)
- Prismo (3-20 mm)



Schunk Clamping Systems



### Between Centers:

- Automatic tailstock available

More custom solutions available

