



*Cutting Edge Precision
Laser Focused*



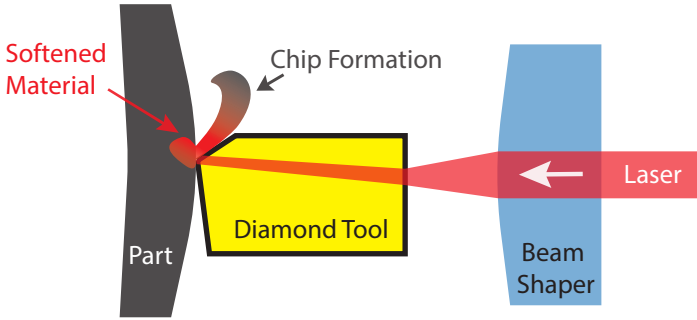
Improve Part Quality

Extend Tool Life

Increase Throughput

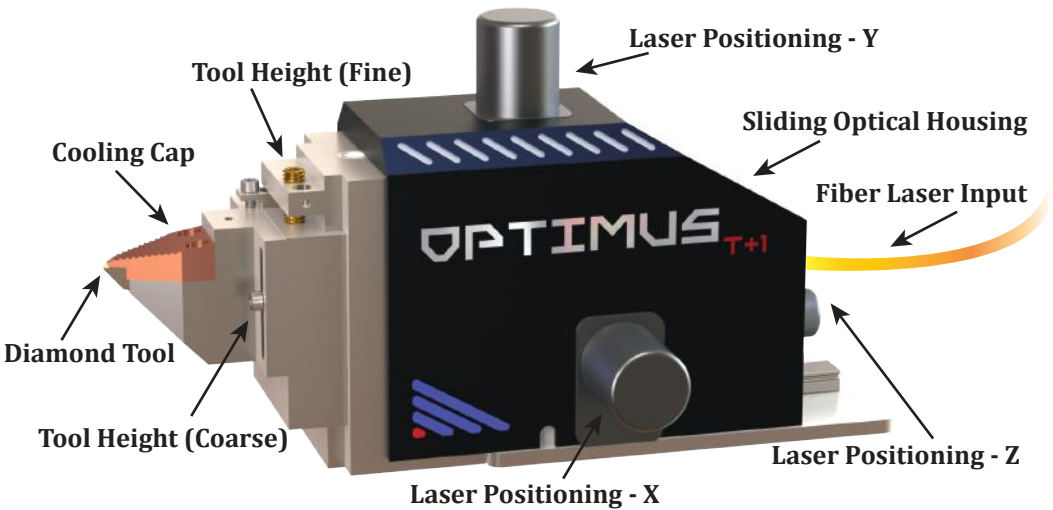
Quick Payback

The Patented Solution



- ◆ The laser beam passes through an optically transparent diamond tool.
- ◆ Innovative solution proven through extensive research & development
- ◆ Laser delivered precisely at tool-workpiece interface
- ◆ Issued patent with 20 claims

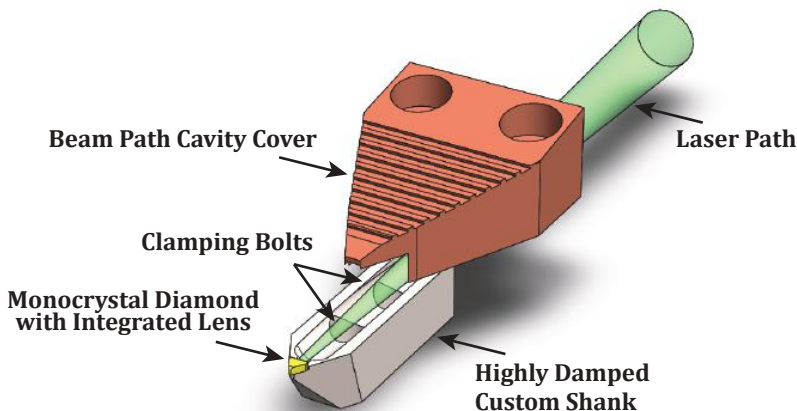
OPTIMUS_{T+1} Key Components



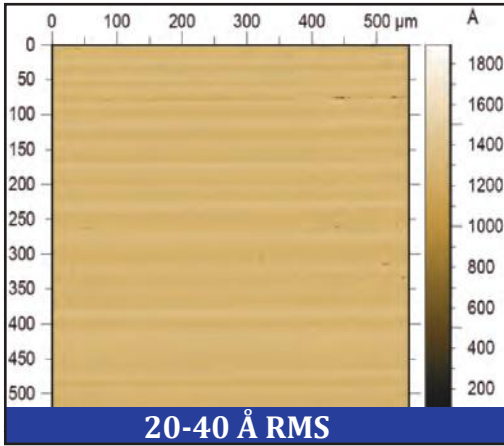
- The OPTIMUS_{T+1} tool post also accommodates conventional diamond tools.
- The optical assembly is isolated from the tooling for enhanced stability.

Proprietary Tool Design

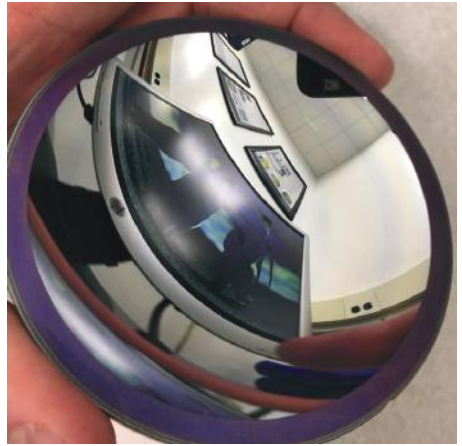
Micro-LAM is the exclusive provider of Diamond Tools for use with the OPTIMUS_{T+1}



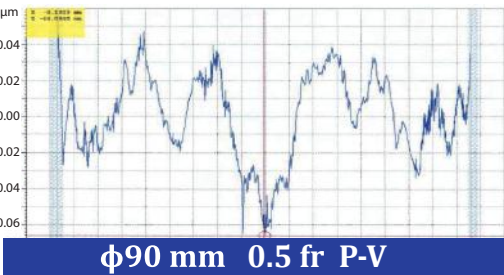
Silicon



20-40 Å RMS

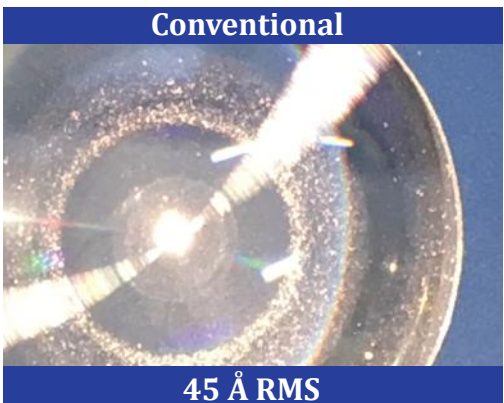


- Faster part machining (2-5x)
- Improved surface finish (2-4x)
- Extended tool life (3-7x)
- Improved form accuracy with correction
- No spoking or surface damage
- Less rainbow effect
- Part diameter: 12-375 mm

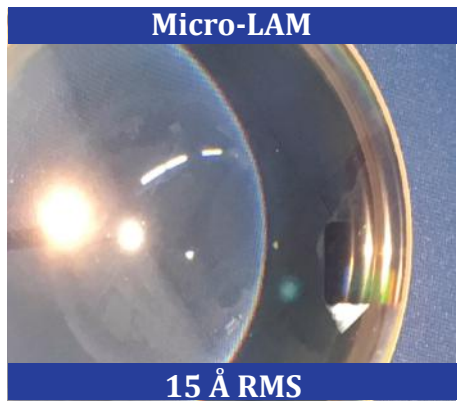


φ90 mm 0.5 fr P-V

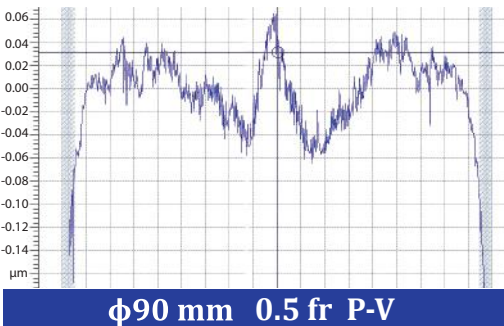
Zinc Sulfide



45 Å RMS



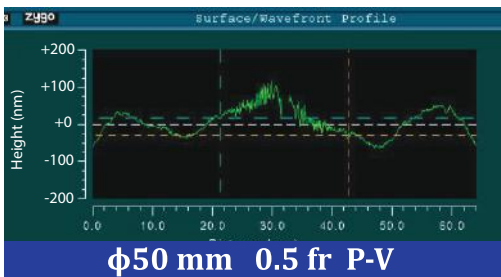
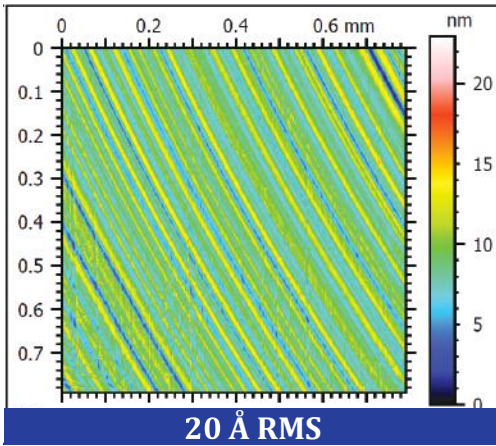
15 Å RMS



φ90 mm 0.5 fr P-V

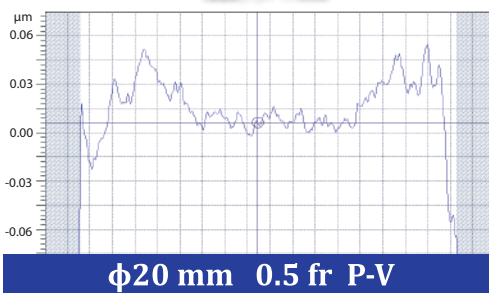
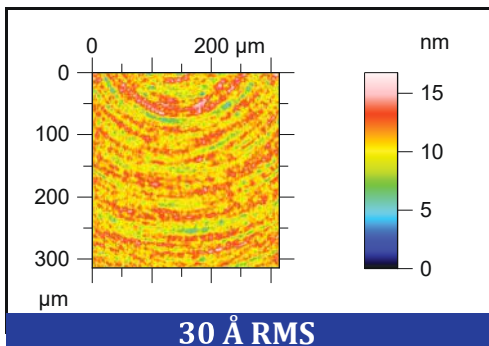
- Faster part machining (2-5x)
- Improved surface finish (2-4x)
- Extended tool life (2-4x)
- Improved form accuracy with correction
- No haze or pitting

Calcium Fluoride



- Faster part machining (3-5x)
- Improved surface finish (2-4x)
- Extended tool life (6-8x)
- Improved form accuracy with correction
- No visible pitting or spoking
- Allows use of low grade material

Tungsten Carbide



- Optical glass press mold tooling
- Injection mold tooling
- 10x faster than grinding
- Improved accuracy & surface quality
- Tool path correction capable

Materials Testing in Progress

Silicon Carbide

Barium Fluoride

Copper

Stainless Steel

Aluminum

Glass

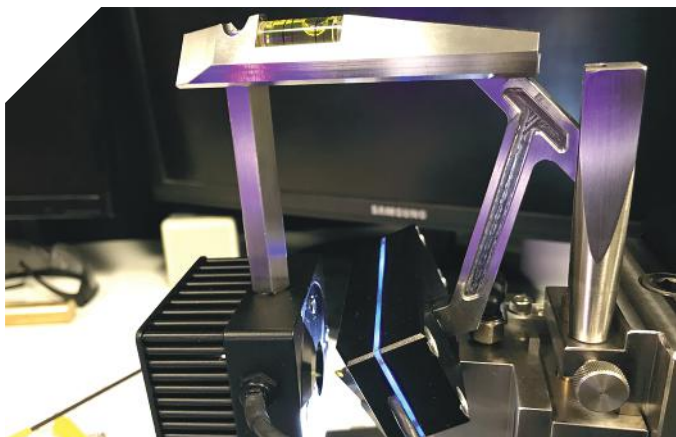
Germanium

Sapphire

Spinel

E-Nickel

Beryllium



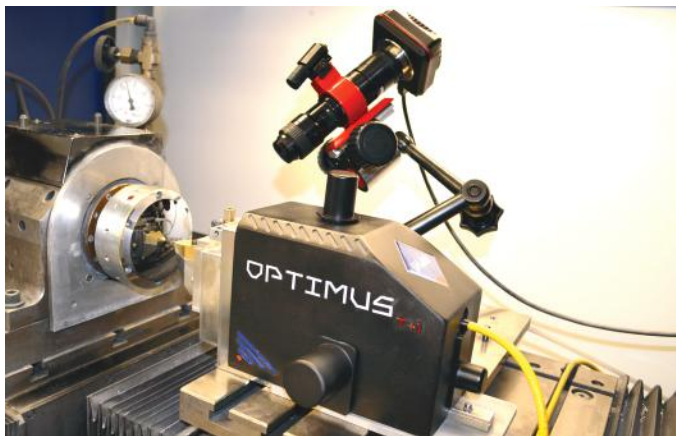
HALO⁺ Laser Beam Alignment



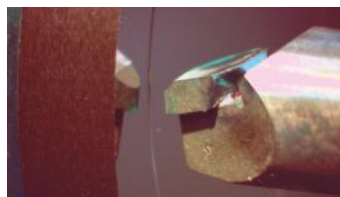
Coarse Align



Fine Align



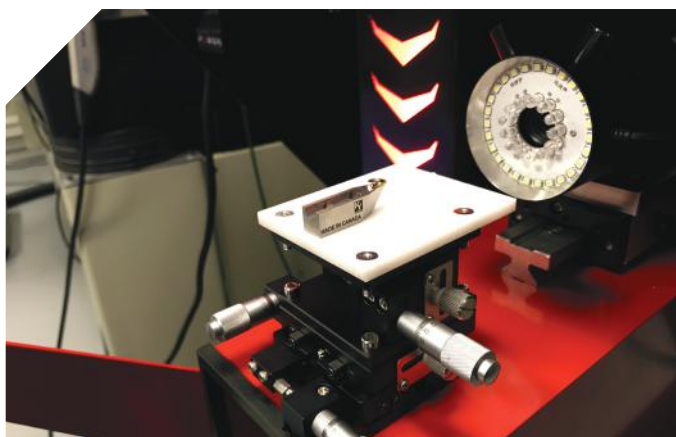
Machining Setup Including VIOS



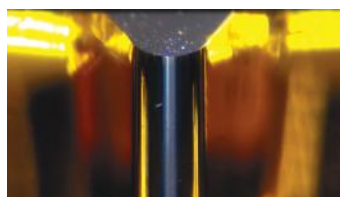
Touch Off



Cutting



Tool Inspection Station



Tool Tip



Tool Back Surface



Laser Safety Barriers



Laser Control Station