EPIC MEMBERS NEW PRODUCT RELEASE

TUESDAY, 6 SEPTEMBER 2022

RAPID PROTOTYPE MANUFACTURING OF GLASS ASPHERES

SAI KUMAR KODE – TECHNOLOGY LEAD



OPTIMUS Ta

THE MICRO-LAM ECOSYSTEM



THE INNOVATIVE OPTIMUS

- Laser Assisted Tool Post
- Retrofits to Diamond Turning machines in hours
- >100 Systems Sold Worldwide
- Customers report quick return on investment from increased productivity



μιλη

THE PATENTED SOLUTION – LASER ASSISTED MACHINING





- Worldwide Patent Coverage.
- Proprietary Opto-Mechanical Diamond Tool (OMDT).
- ► Flexible Tool Geometries.
- Micro-LAM is the exclusive & only authorized supplier of the OMDT.

BOLT – BETTER OPTICS THROUGH LASER TURNING

- Advantages of Diamond Turning over CNC Aspheric Grinding:
- Improved figure control (form P-V).
- Improved surface roughness (pre-polish or better quality).
- Significantly less sub-surface damage.
- Minimizes polishing time.
- Rapid prototyping for glass elements.
- Ability to add mechanical features with diamond tool.
- Complex aspheric & freeform capability.
- Deterministic manufacturing with Ultra-Precision CNC platform



GROUND VERSUS DIAMOND TURNED



Ø25 mm Fused Silica

Ø25 mm Fused Silica

MANUFACTURING SPECIFICATIONS & TOLERANCES

Parameter	Value	Tolerance
Glass Material	Fused Silica & N-BK7	-
Diameter [mm]	5 – 50	+ 0.000 / -0.025
Center Thickness [mm]	<40	±0.050
Aspect Ratio	<8:1	_
R-Numbers	>1.50	Radius Tol. 0.1%
Clear Aperture	90%	_
Irregularity (PVr)	λ/4	_
Scratch/Dig	40 - 20	_
Surface Roughness [nm]	<3 (polished)	_
Coating	AR (R<0.2%) or custom	_

WHY IS RAPID PROTOTYPING IMPORTANT?

- Our 6-8 week lead times allow for faster testing and iterations to designs/components this effectively doubles our customers R&D throughput, getting their products to market faster
- Standard lead times today typically range from 12-24 weeks
- Our novel manufacturing methods allow for the inclusion of mounting features such as flanges and fiducials enabling quicker and ultimately cheaper assembly
- Flexibility in manufacturing enables complex aspheric and freeform designs resulting in better SWaP (Size, Weight, and Power) and more competitive products for our customers
- Precision glass molds can cost \$35k or more building several prototype units to prove out the design prior to molding can save months of time and tens of thousands of dollars by reducing iterations





MICRO-LAM, Inc. 5960 S. Sprinkle Rd., Portage, MI USA | www.micro-lam.com | +1 (269) 288-4100