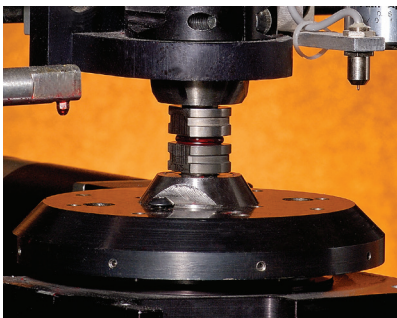


Optical Blocker

Overview

Optical Blocking was invented and patented worldwide by Benz Research & Development in 1994. Since building our first machine, we have greatly expanded the functions and overall ability of the Optical Blocker for manufacturing contact lenses and IOLs. The Benz Optical Blocker today represents the only commercially available blocking interface between base curve machining and front curve machining that achieves accuracy and precision comparable to the lathes currently used in the contact lens and IOL industries. The Benz Optical Blocker is designed and built to deliver unequalled accuracy and precision through years of trouble free use. Our original blocker is still in every day use at Benz R&D. The Benz Optical Blocker provides many manufacturing advantages and can be used as a stand-alone machine operated manually, by robot, or fully integrated into an automated system, Integrated Lens Manufacturing. Optical Blocking eliminates the common manufacturing problems associated with blocking:

- prism error,
- edge thickness and
- center thickness variations.



Features

1. Specific features of the Optical Blocker
2. Measures radius of curvature with ± 2 microns accuracy
3. Measures both major and minor cylinder radii with ± 2 micron accuracy
4. Positions apex of concave and convex lenses with ± 1 micron accuracy, in X, Y and Z
5. Concentric blocking – average max - min variations in edge thickness of 5 microns, see table below
6. Cylinder alignment to better than 0.5° accuracy
7. Constant center thickness of contact lenses ± 5 microns
8. Automatically measures 10° offset radius of curvature for lathe sphericity adjustments
9. Automatically calibrates lathes for radius and sphere
10. Provides “dead-length” apex blocking – constant distance between second side mandrel base and apex of mounted first side lens
11. Full suite of DIP and motion control routines for manual lens analysis
12. Includes full automatic, semi-automatic and manual modes of operation

Calibration VAlues (X and Y Axis) for a Typical Set-up Sequence on the Optical Blocker						
Part	# Center	Y1 (mm)	X2 (mm)	Y2 (mm)	X1 (mm)	Max-Min (mm)
1	0.158	0.135	0.135	0.131	0.131	0.004
2	0.153	0.145	0.147	0.146	0.142	0.005
3	0.155	0.145	0.146	0.141	0.141	0.005
4	0.155	0.143	0.147	0.142	0.140	0.007
5	0.152	0.142	0.145	0.141	0.141	0.004
Average	0.155	0.142	0.144	0.140	0.139	0.005
STDEV	0.002	0.004	0.005	0.006	0.005	0.001

Benefits

Increased yield with improved quality are the obvious benefits of Optical Blocking. Additional benefits to your manufacturing competitiveness that may not be obvious are:

- Automatically provides micron accurate radius measurements of spherical radius as well as major, minor axis of toric lenses and a permanent record of measurements
- Automatically rejects optics that do not meet target tolerances
- Automatically calibrates your lathes for radius and sphere to tolerances that you set and provides a real time process control record of lathe calibration.
- Picture shows blank after first side machining.

