

High Precision Aspheres for High Performance Applications

Product Information

Due to the unique profile, aspherical lenses eliminate monochromatic aberrations (e.g. spherical aberrations) and lead to a better overall image quality. They are increasingly used to replace multi-spherical element assemblies resulting in a weight reduction as well as in a more compact design.

Applications

- Digital projection, camera, binocular
- High power laser lenses
- Endoscopy
- Microscopy
- Astro & Space

Materials

- Optical glass
- Fused silica
- Other materials on request

Advantages

- Custom designed products at competitive prices
- 1 piece to series production levels
- Coating: all lenses can be coated to specific custom designs
- SCHOTT masters the entire value chain from raw glass to aspherical coated lenses



Specifications

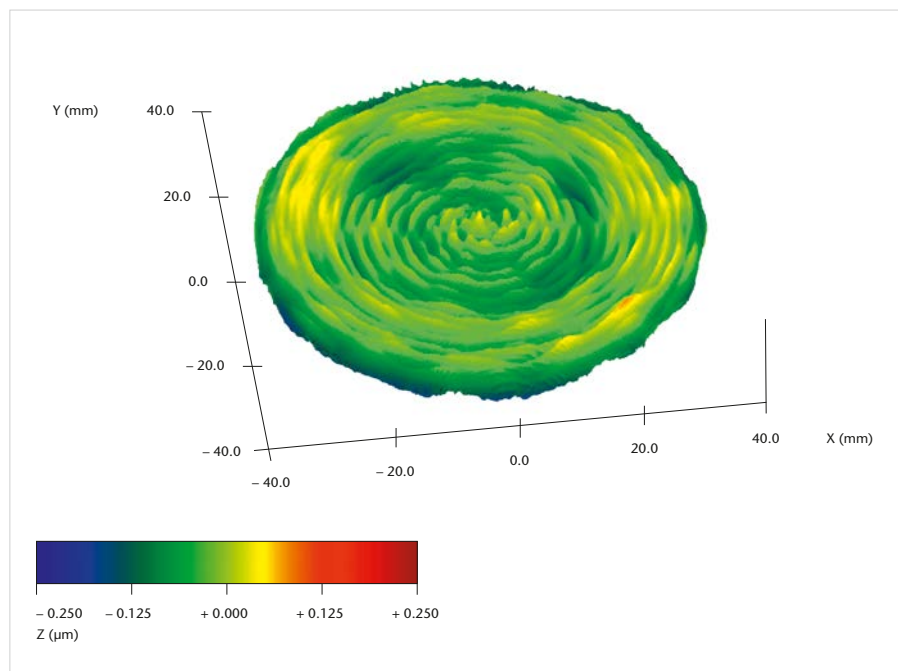
Spec attribute	Parameter	Precision	High Precision
Dimensions	Diameter ¹	10 – 200 mm	10 – 200 mm
	Diameter tolerance	± 0.03 mm	± 0.015 mm
	Center thickness	3 – 40 mm	5 – 40 mm
Surface form tolerances and aspheric surfaces	Radius of curvature convex	> 20 mm	> 30 mm
	Radius of curvature concave	on request	on request
	Tolerance on radius of curvature	± 0.1 %	± 0.05 %
	Irregularity (PV) – B ¹ [ISO 10110-5]	0.5 µm	0.3 µm
	Max slope error – F ¹ [ISO 10110-5]	0.5 mrad/mm	0.2 mrad/mm
Centering	Tilt of asph. side to other side	3 arc min	1 arc min
Surface texture and imperfections	Surface roughness – Rq [ISO 10110-8]	3 nm	1 nm
	Scratch/Dig [MIL]	60/40	20/10
	Dig – Nx ² [ISO 10110-7]	3 x 0.25	3 x 0.04

¹subject to evaluation of the requested aspherical shape

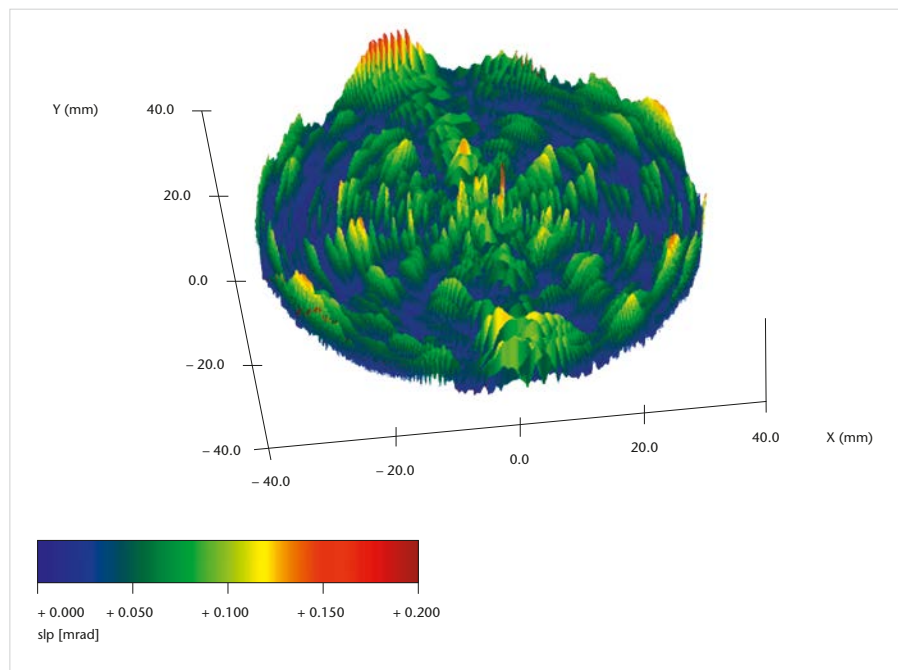
²depends on the lens diameter

3D Metrology* / Best-in-class optical lenses with minimal surface form errors

Typical form deviations (irregularity function) for a 80 mm lens diameter



Excellent slope error performances: maximum slope error < 0.15 mrad/mm



* Measurement accuracy of $\pm 50 \text{ nm}$ (3σ) up to 90° object slope
Extremely good reproducibility of measurement results



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