asphericon

Technologies

Diamond turning

Ultra-precise cutting using monocrystalline diamond is the key technology for manufacturing virtually any optical functional surface with the utmost precision. This enables the processing of non-ferrous metals, nickel-phosphorus coatings, plastics, crystals and IR lenses.

Manufacturing dimensions [ISO 10110-1]		
Achievable diameters	mm	1 - 420
Center thickness	mm	from 0.5[1]
Surface shape [ISO 10110-1; 12]		up to
Irregularity – B (PV)[2]	nm	100
RMS irregularity – RMSi – D	nm	20
Surface roughness – Rq	nm	1

1 Depends on diameter and material
2 Often also called the PV - error of the measured surface. Means the total surface deviation corrected for Sagitta error (power).

Available technologies
= Diamond turning with 2 and 3 linear axes
= Fly cutting
= Slow tool servo

Processable materials
= Copper, aluminum, brass, nickel silver, nickel
= Nickel-phosphorus layers
= Polycarbonate, PMMA
= Silicon, germanium, zinc sulfide
= IR lenses

Achievable optical component geometries	
= Aspheres	= Microlenses
= Spheres	= Fresnel structures
= Cylinders	= Diffractive optical elements
= Toroids	= Freeforms