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-phosphorus layers
- = Polycarbonate, PMMA
- = Silicon, germanium, zinc sulfide
- = IR lenses

Achievable optical component geometries

- = Aspheres
- = Spheres
- = Cylinders
- = Toroids
- = Microlenses
- = Fresnel structures
- = Diffractive optical elements
- = Freeforms

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