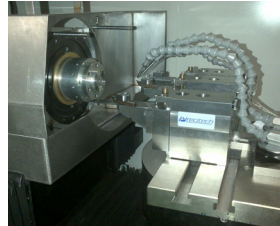
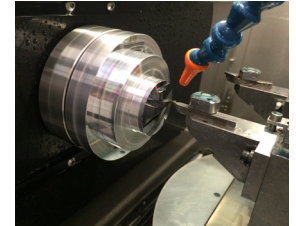


Nanoform® X



Set up

Nanoform® 250 ultra grind



Set up

Goal:

Demonstrate the capability to manufacture an infrared silicon lens with 15 diffractive zones, meeting surface finish, form accuracy, and absolute radius specifications.

Process:

Using a Nanoform® X with an inner enclosure, to contain water-based coolant, or Nanoform® 250 ultra grind, specifically designed for flood coolant applications, to manufacture a multi-zone aspheric diffractive silicon lens.

Part Details:

- Material:** Optical grade silicon
- Diameter:** 43.0 mm
- Base radius:** 107.787 mm (\pm 0.037 mm)
- Center thickness:** 6.0 mm

Diffractive Details:

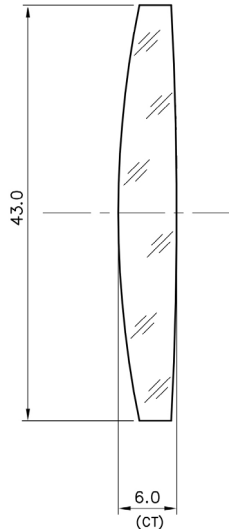
- Zones:** 15
- Zone diameter tolerance:** 0.02 mm
- Zone depth:** 1.2 μ m

Process Details:

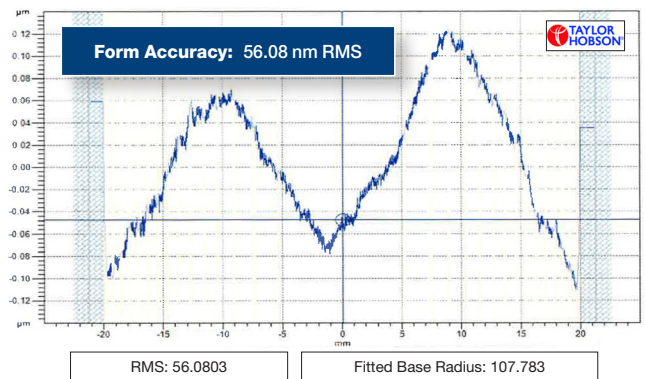
- Tool:** 0.2 mm radius, negative rake diamond tool
- Spindle speed:** 3500 rpm
- Feed rate:** 2.0 mm/min
- Depth of cut:** 4.0 μ m
- Coolant:** Water-based

Results:

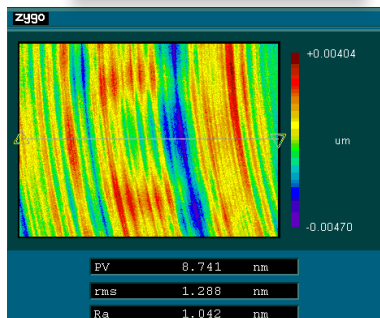
- **Surface finish:** 1.04 nm Ra
- **Form accuracy:** 56.1 nm RMS
- **Fitted base radius:** 107.783 mm



Part photo on Taylor Hobson Form Talysurf



Surface Finish: 1.04 nm Ra



Diffractive Step: 1.2 μ m

