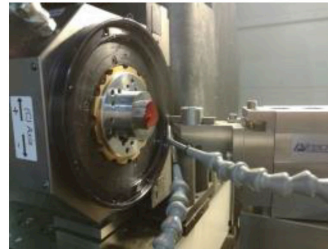




Freeform® L



Setup Photo



Part Photo

**Goal:**

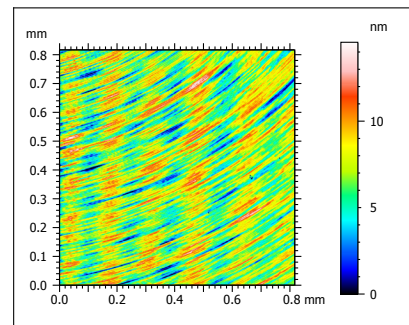
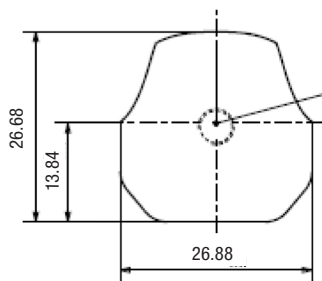
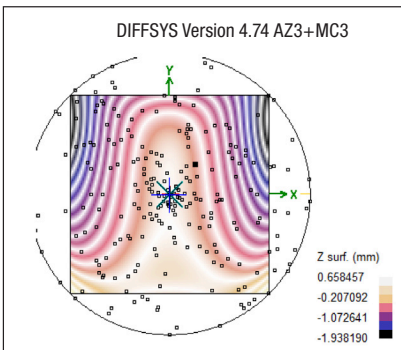
Demonstrate the surface finish achievable when manufacturing a Freeform Augmented Reality Lens Mold by Slow Tool Servo (STS) on a Freeform® L.

**Process:**

Freeform XZC diamond turning

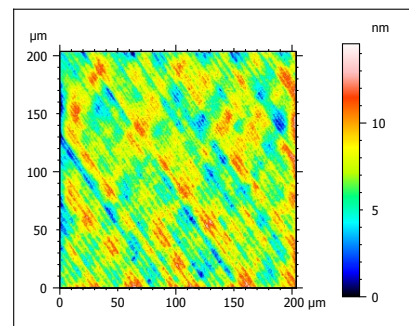
**Part Details:**

- **Material:** Nickel plated steel
- **Part dimensions:** 26.68 mm x 26.68 mm



Sample 1 - near center

ISO 4287		
Amplitude parameters - Roughness profile		
Rt	10.3 nm	Gaussian filter, 0.08 mm
Ra	1.35 nm	Gaussian filter, 0.08 mm
Rq	1.66 nm	Gaussian filter, 0.08 mm



Sample 1 - outside edge

ISO 4287		
Amplitude parameters - Roughness profile		
Rt	5.04 nm	Gaussian filter, 0.08 mm
Ra	0.872 nm	Gaussian filter, 0.08 mm
Rq	1.11 nm	Gaussian filter, 0.08 mm

**Process Details:**

- **Tool:** Single point diamond tool
- **Tool Radius:** 0.76 mm
- **Spindle speed:** 70 rpm
- **Feed rate:** 5 µm/rev
- **Finish pass depth of cut:** 2 µm
- **Coolant:** Odorless mineral spirits (OMS)

**Results:**

- **Surface finish near center:** 1.35 nm Ra
- **Surface finish near edge:** 0.872 nm Ra