



Nanoform® 700 ultra

Nanoform® L 1000

Goal:

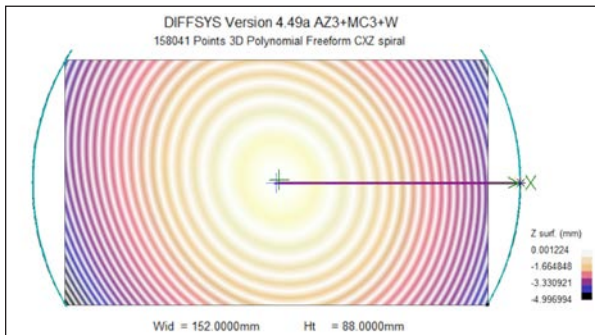
Demonstrate the surface finish and form accuracy achievable when machining a Head-Up Display (HUD) mold on either the Nanoform® 700 ultra or the Nanoform® L 1000 machine platform using Adaptive Control Technology (ACT) and an HD160 high capacity work holding spindle.

Process:

Freeform XZC diamond turning with Adaptive Control Technology to eliminate errors in X and Y that repeat with spindle position

Part Details:

- **Material:** Brass



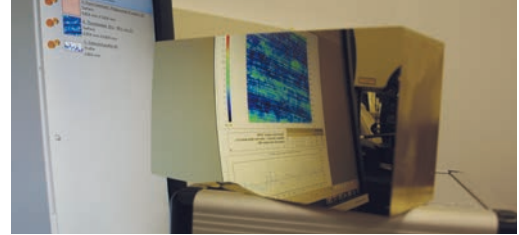
Process Details:

- **Tool:** Single point diamond tool
- **Tool radius:** 1.5 mm
- **Spindle speed:** 200 rpm
- **Feed rate:** 2.5 µm/rev
- **Coolant:** Odorless mineral spirits (OMS)

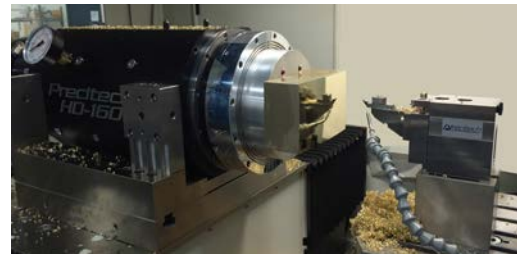
Results:

- **Surface finish near center:** 0.744 nm Ra
- **Surface finish near edge:** 1.31 nm Ra

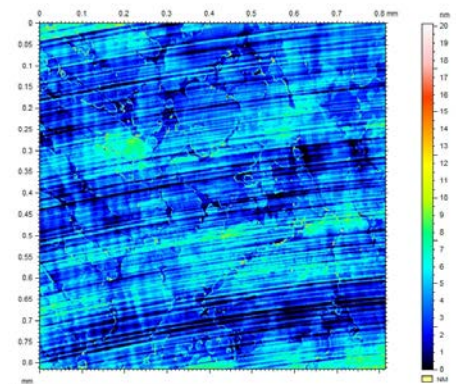
Part Photo



Setup Photo



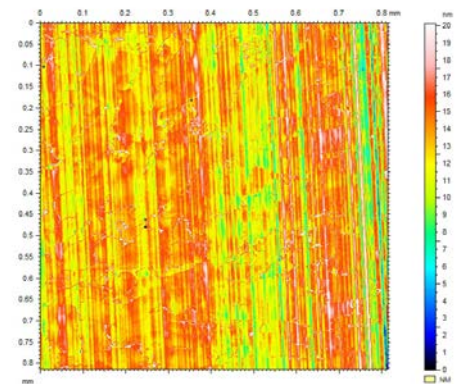
Sample 1-
near center



ISO 4287		
Amplitude parameters - Roughness profile		
Ra	0.744 nm	Gaussian filter, 0.08 mm Arithmetic Mean Deviation of the roughness profile.
Rz	5.07 nm	Gaussian filter, 0.08 mm Maximum Height of roughness profile.
Rq	0.974 nm	Gaussian filter, 0.08 mm Root-Mean-Square (RMS) Deviation of the roughness profile.

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Sample 1-
outside edge



ISO 4287		
Amplitude parameters - Roughness profile		
Ra	1.31 nm	Gaussian filter, 0.08 mm Arithmetic Mean Deviation of the roughness profile.
Rz	8.44 nm	Gaussian filter, 0.08 mm Maximum Height of roughness profile.
Rq	1.70 nm	Gaussian filter, 0.08 mm Root-Mean-Square (RMS) Deviation of the roughness profile.

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