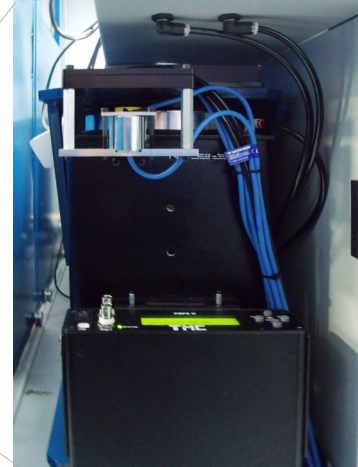




Freeform® L



PEPS II-VX installed on a Freeform® L

Goal:

Demonstrate part cutting time, surface finish, and form accuracy achievable by 3 axis ruling on a Freeform® L equipped with PEPS II-VX, an active on machine vibration cancellation and precision leveling system.

Process:

XYZ ruling on a Freeform® L. The part was fixtured on a 45° slope between X and Z and 45° from horizontal, requiring the ruling process to utilize 3 linear axes simultaneously.

Part Details:

- **Material:** Nickel phosphorus plated steel
- **Part dimensions:** 50 mm x 50 mm
- **Machined area:** 10 mm x 50 mm

Process Details:

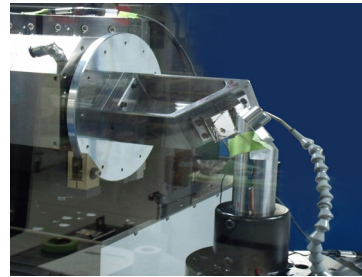
- **Tool:** 1.5 mm radius
- **Feed rate:** 500 mm/min
- **Finish pass depth of cut:** 5 µm
- **Step over:** 5 µm
- **Coolant:** Odorless mineral spirits (OMS)

Results:

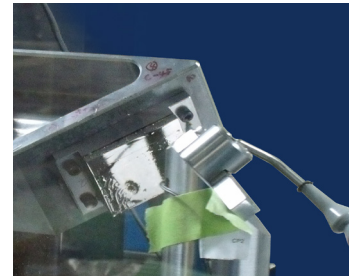
- **Cutting time with PEPS II-VX:** 8 hours*
- **Cutting time to achieve similar surface finish results without PEPS II-VX:** 16 hours
- **Surface finish:** 2.64 nm Sa
- **Form accuracy:** 0.113 µm PV**
0.024 µm rms

* faster settling reduces cutting time

** reduced cutting time minimizes thermal effects, improving form

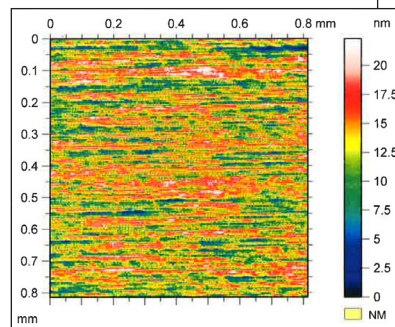
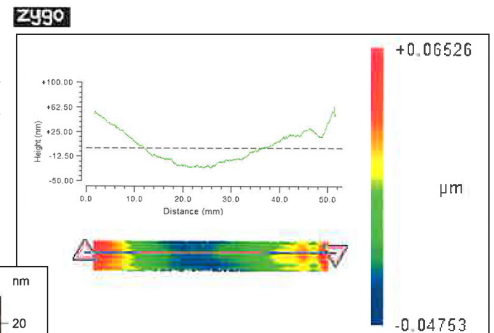


Setup Photo



Part Photo

Form measured on Zygo GPI



ISO 25178		
Height Parameters		
SA	2.64022 nm	Arithmetic mean height

PV	0.113 µm
rms	0.024 µm
Size X	49.87 µm

Finish measured on Taylor Hobson CCI