# 3 Axis (XYZ) Ruling using PEPS II-VX

# **APP**NOTE



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.

Freeform® L

#### **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:

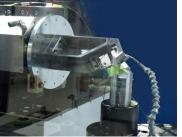
- Material: Nickel phosphorus plated steel
- Part dimensions: 50 mm x 50 mm
- Machined area: 10 mm x 50 mm

## **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)

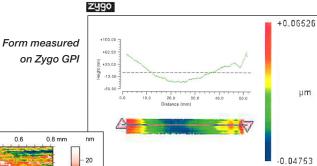
### Results:

- 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



0	0,2	0.4	0.6	0.8 mm	nm
0.1					- 20
0.2				and the same of th	- 17.5
0.3		3.25	- PO - 1		- 15
0.4					- 12.5
-		To the second		10 P	10
0.5	Africa Mari	A STATE OF	-		- 7.5
0.6					- 5
0.7	THE TALL BY				- 2.5
0.8					0
mm					MM [

ISO 25178					
Heigl	Height Parameters				
SA	2.64022 nm	Arithmetic mean height			
_ O, (	L.O TOLL TITT	p unumnous moun moigne			

PV 0.113 μm rms 0.024 μm Size X 49.87 μm

Finish measured on Taylor Hobson CCI

# **AMETEK® Precitech, Inc.**

44 Blackbrook Road • Keene, NH 03431 USA Phone: 603-357-2511 • Fax: 603-358-6174 www.precitech.com

