

PS6: Kinematic coupling stiffness exercise

Study: Sensitivity due to mechanical interface

- Step 1: Setup – pay attention up front
- Step 2: Test repeatability
 - Non-lubricated (35 mates)
 - Lubricated (35 mates)
- Step 3: Test stiffness
 - Preload levels 1, 2 and 3 (note moment arms....)
- Step 4: Compare theory (spread sheet) and measured
 - $E = 30 \text{ Mpsi}$ $\nu = 0.28$ $R_i = \text{measured}$

Questions to think about

- How do (not should) lateral & axial stiffness scale with preload?
- Plate stiffness (sweet spot) to prevent metrology errors?
- How repeatable is your bio-unit preload?
- Who has the best repeatability?
- What are the implications for your STM?