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| Title: | Determining Preload using the Universal Test Rig | | |
| Description: | Using a plunge gauge in a slide to apply a ramped force to the | | |
| Project: | Preload Measurement | | |
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| Issue: | 1 | Date: | 03/05/2023 |

**1 Introduction**

Currently, there is a basic understanding of the interaction between movers and slides.

What do we currently understand

* There is some positive correlation between preload and pull force
* There is a positive correlation between deflection of the plunge clock and pull force

What we don’t currently understand

* Is the relationship linear or partially linear or other?
* What preload corresponds to a certain pull force or deflection.

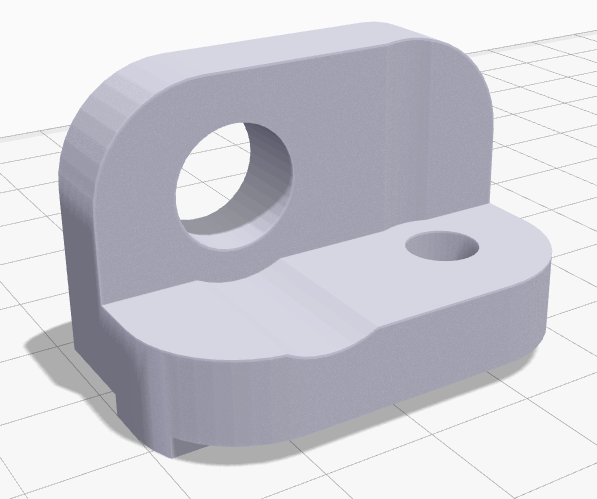
The interaction between movers and slides is a substantial aspect in many products in HepcoMotion. In the context of GFX, understanding the intricacies of the interaction would enable better quality control, which in turn would provide improved performance and reliability.

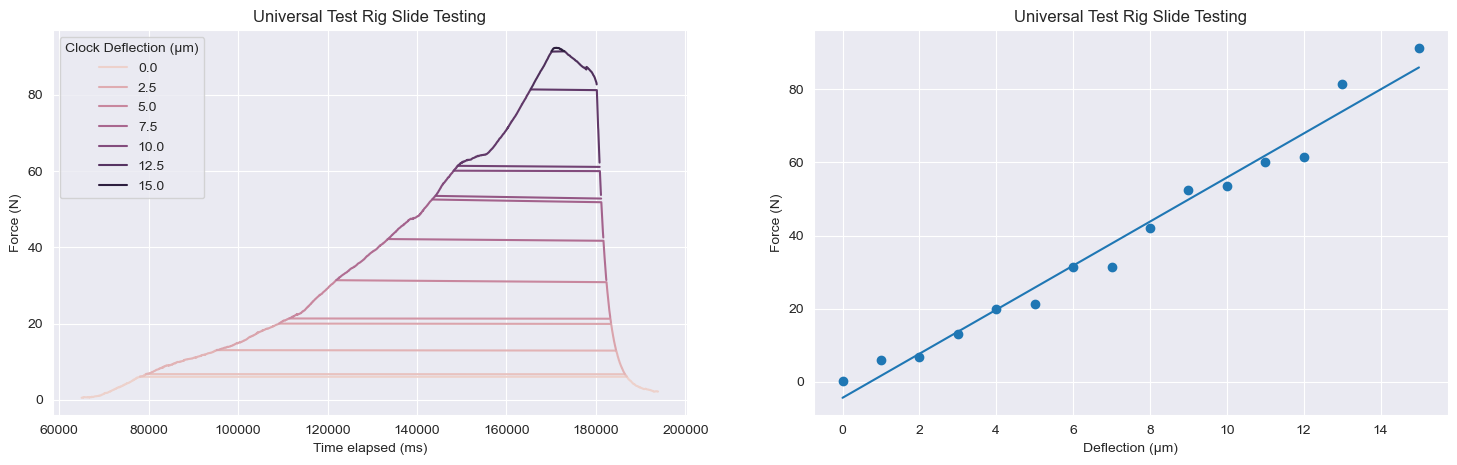
While we have some basic understanding of the slide and mover relationship through mechanisms such as preload and pull force, we do not currently have a way of converting between them.

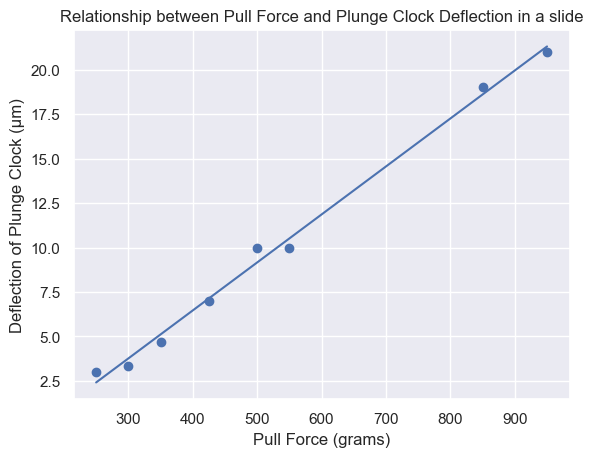
between preload and pull force on our sliders, there are still several important questions that remain unanswered. Specifically, we need to determine whether the relationship between preload and pull force is linear or partially linear, and what preload values correspond to specific pull force or deflection levels. By addressing these questions, we can improve our understanding of the interaction between movers and slides, and develop more effective designs that meet the needs of our customers. In this report, we will present our findings and provide recommendations for optimizing the performance of our sliding mechanical

**2 Apparatus**

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