

# Humanetics Innovative Solutions, Inc.

## Dimensional Tolerance Review Flex PLI

IG GTR9-PH2 9<sup>th</sup> Meeting

# Content

- ▶ Overall Flex PLI length tolerance
- ▶ Dimensions pendulum

# Review to Overall Flex PLI Leg length Tolerance

- ▶ It has been observed that the  $\pm 3$  tolerance on the 928 overall leg length tends to be on the high side of the tolerance. Some recorded values are shown below.
- ▶ Due to segment buffers slightly under compression, all component play in the links leans towards leg elongation
- ▶ It is also expected the leg will stretch slightly with use as parts wear
- ▶ Humanetics will review new and used legs to confirm this issue
- ▶ A positive shift to the tolerance like  $-2/+4$  could be an option

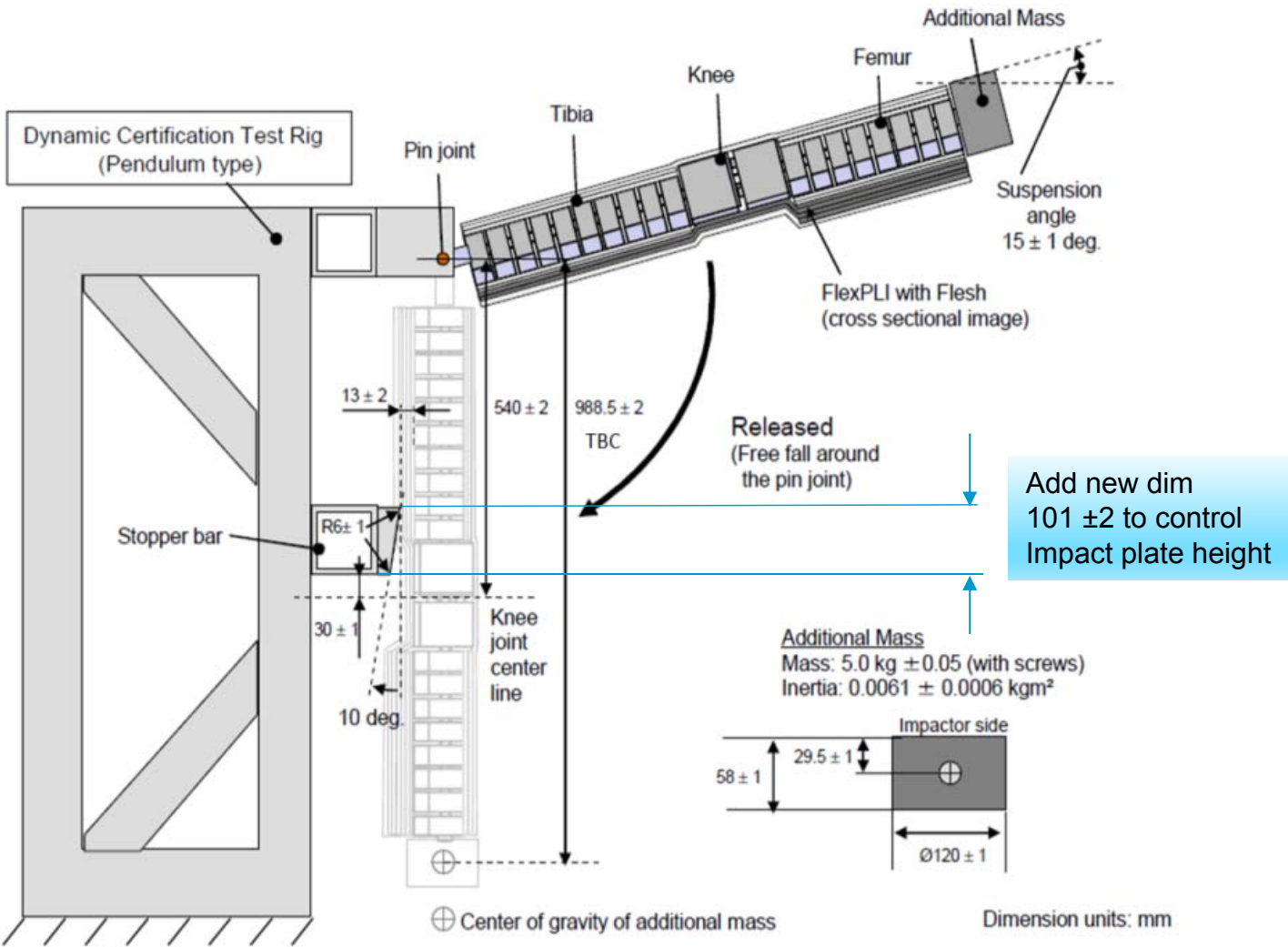
Measured Dim	Relation to Tolerance
931	+3
931	+3
929.5	+1.5
929	+1
927	-1
929	+1

# Length Tolerance affect on Pendulum Dimensions

- ▶ If the leg tolerance is revised the pendulum rig dimension 968.5 prescribed on the pendulum rig diagram should also be revised accordingly. This should be made  $\pm 3$  not  $\pm 2$  anyway to match the leg.
- ▶ The 540 dimension on the pendulum rig also suggests the tolerance should be shifted up. See table below, Humanetics will gather more data to confirm
- ▶ The alternative to the above would be shortening the pin joint attachment to suit the leg.
- ▶ Note that due to hanging, stretching due to additional mass and play in components the length variation is biased to elongation, not compression

Measure 540 Dim	Relation to tolerance
541.1	+1.1
544	+4
544	+4
539.8	-0.2
543	+3

# Proposed additional regulation dimension





Thank You