

Repeatability and Reproducibility for the Flex-G (Thigh, Leg, Knee)

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BACKGROUND

- J-MLIT already investigated and reported of the repeatability and reproducibility for the Flex-PLI 2003 (TEG-007), however, no information for the Flex-G so far.

Objectives

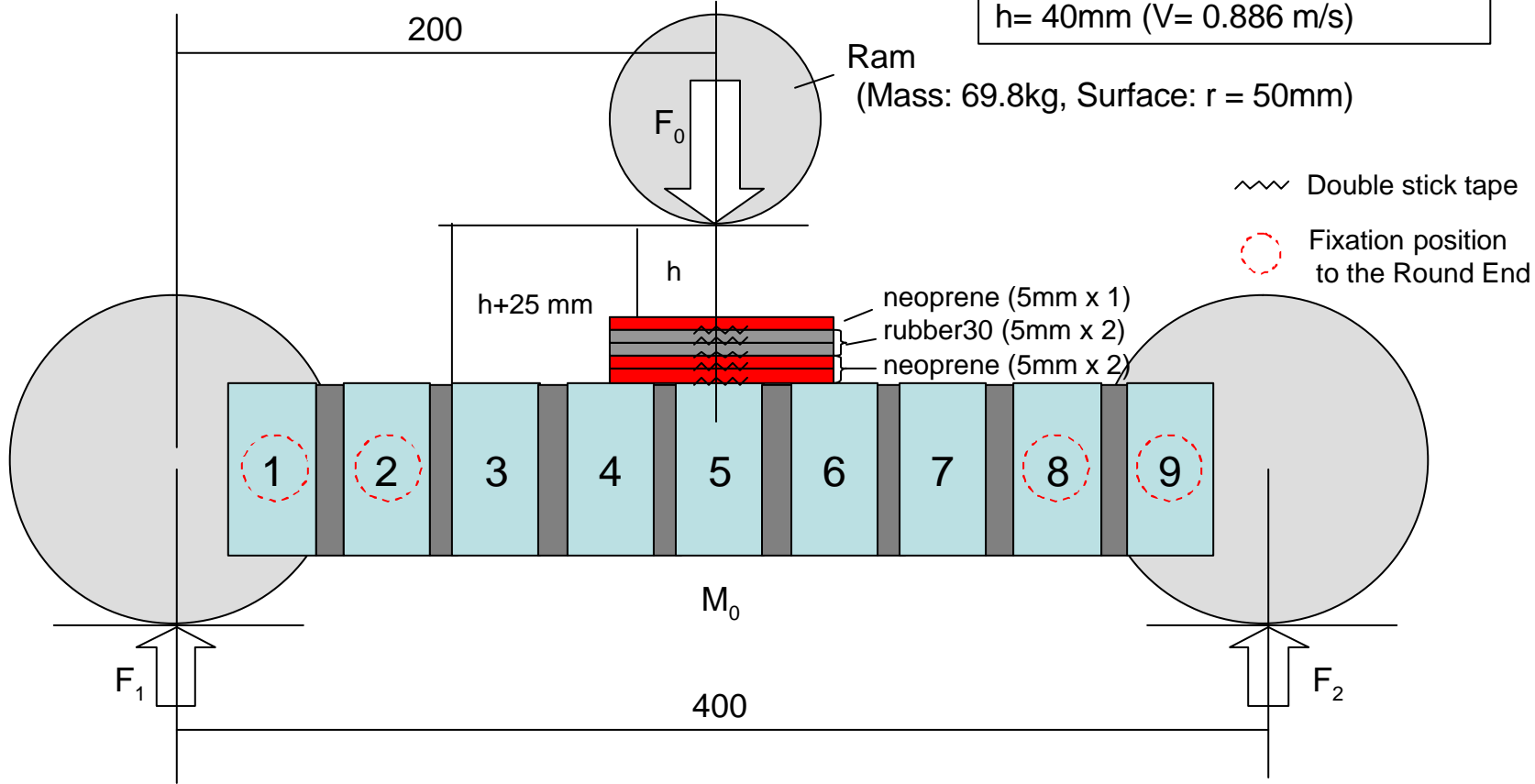
- Investigate repeatability and reproducibility for the Flex-G (Thigh, Leg, and Knee), and inform the investigate results to the Flex-TEG MT.

Method

for Thigh (3-point bending)

Thigh-400M-R50

Drop height:
 $h = 40\text{mm}$ ($V = 0.886\text{ m/s}$)



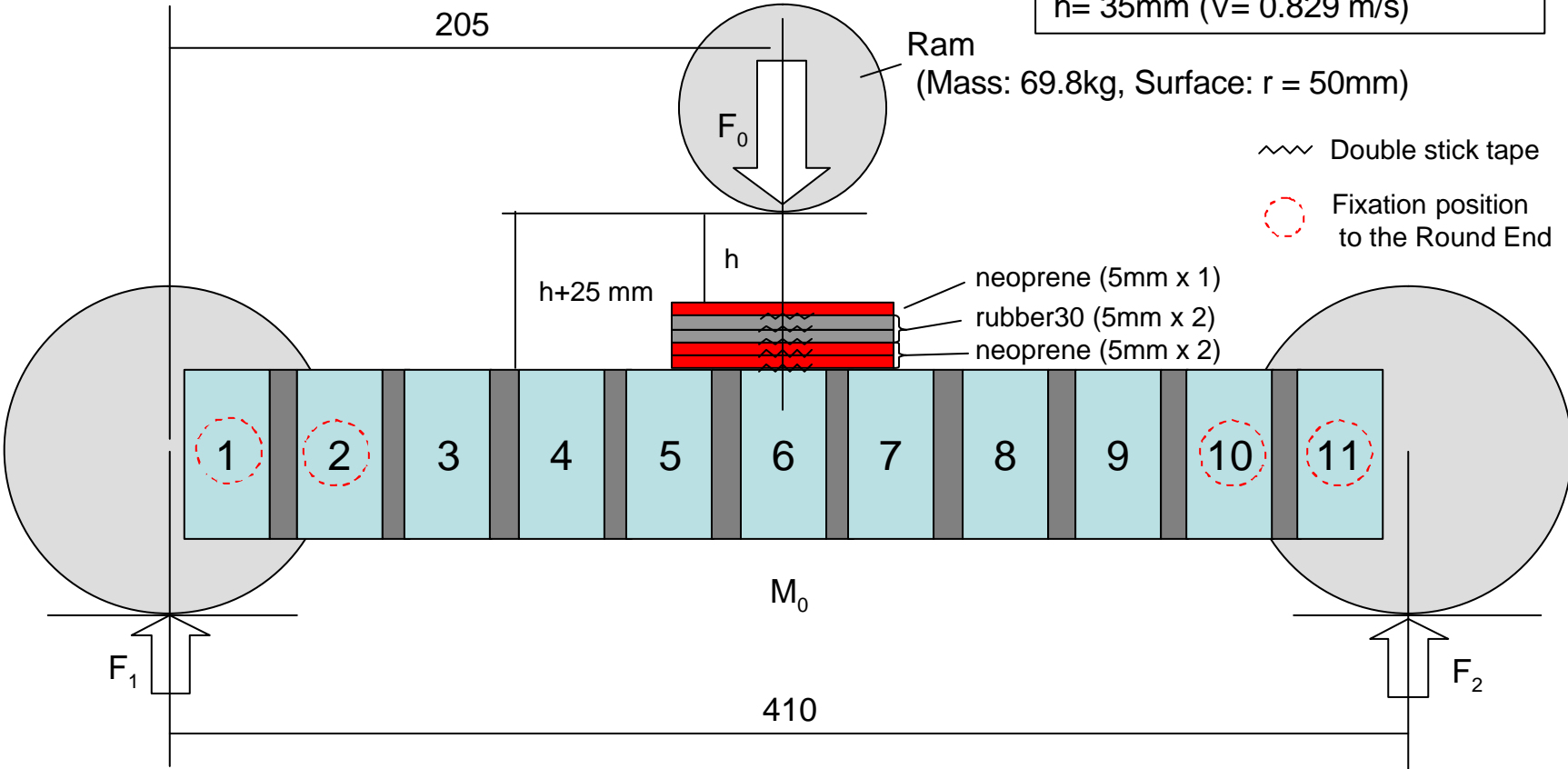
$$M_0 \cong F_1 \times F_2 / (F_1 + F_2) \times 400$$

unit: M (Nm), F (kN)

for Leg (3-point bending)

Leg-410M-R50

Drop height:
 $h = 35\text{mm}$ ($V = 0.829\text{ m/s}$)

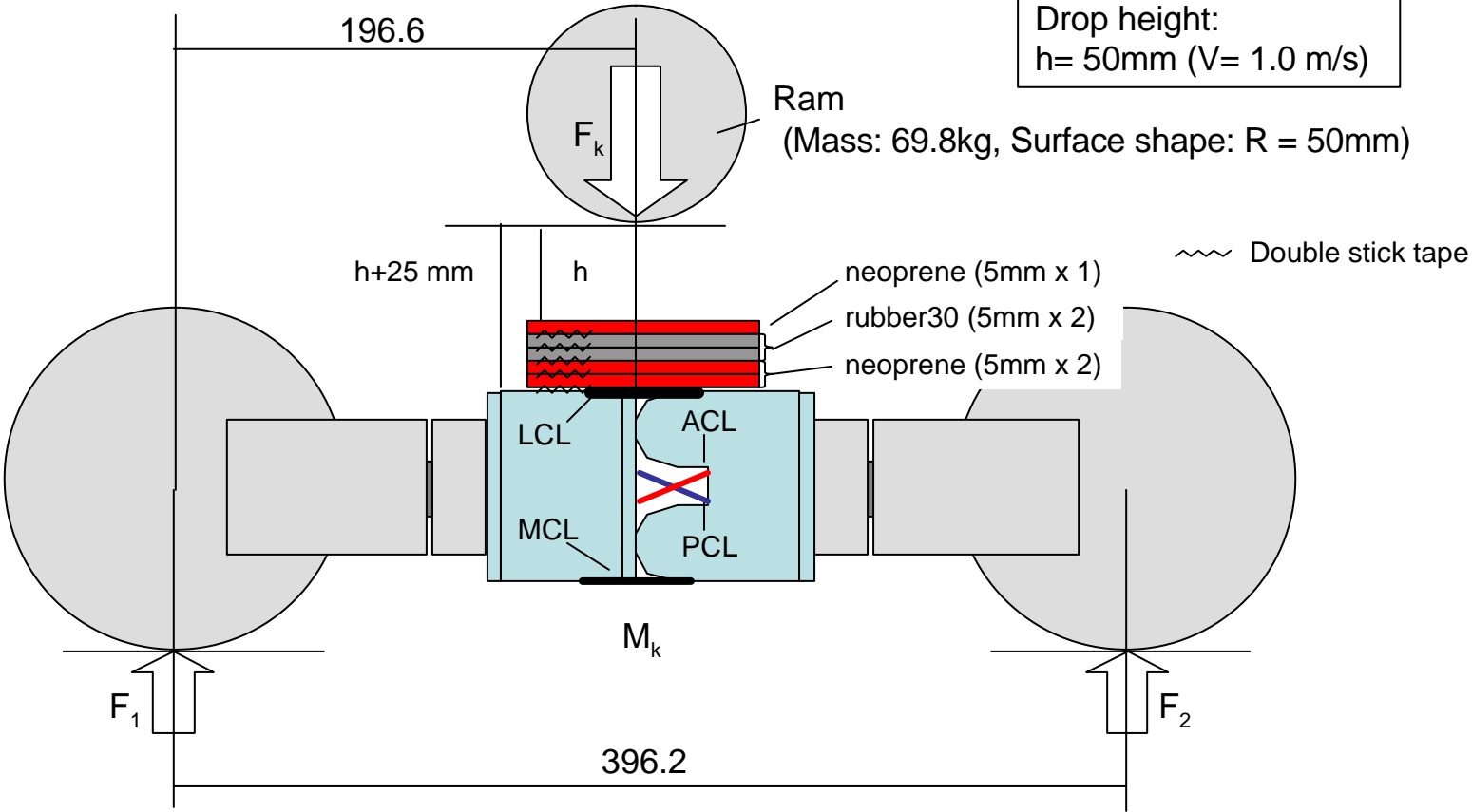


$$M_0 \cong F_1 \times F_2 / (F_1 + F_2) \times 410$$

unit: M (Nm), F (kN)

for Knee (3-point bending)

Knee-3PB-396-R50



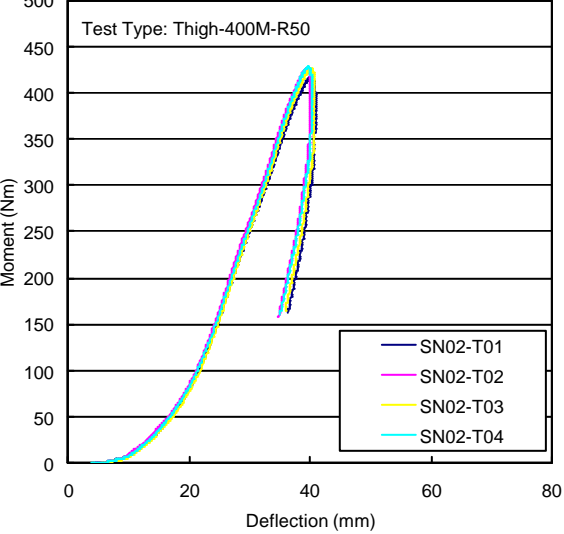
$$M_k \cong F_1 \times 196.6$$

unit: M (Nm), F (kN)

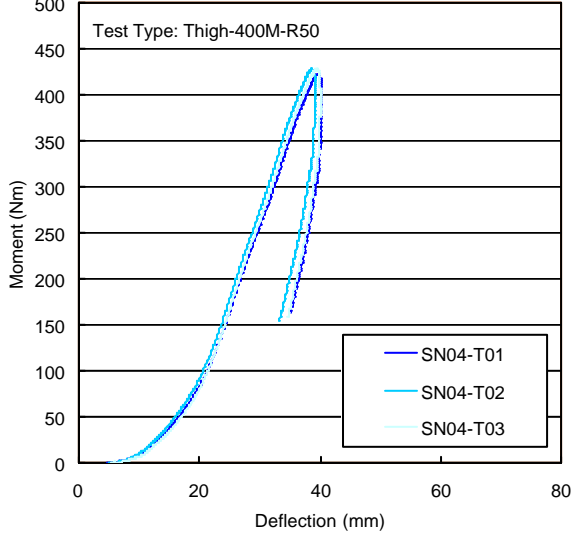
Results

Repeatability and Reproducibility for Thigh (Flex-G)

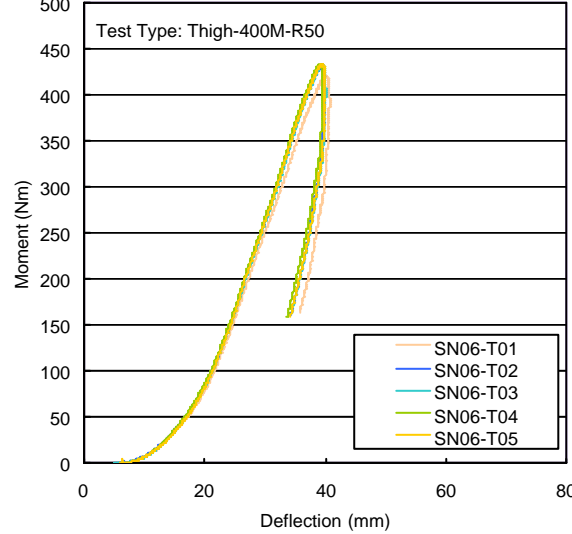
Flex-G (Serial Number:02)



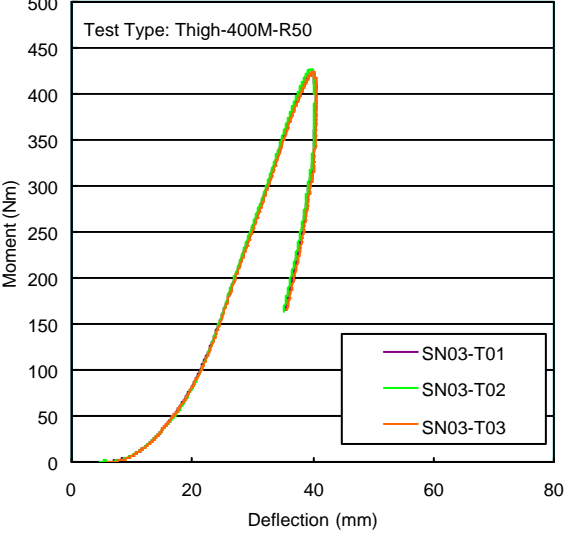
Flex-G (Serial Number:04)



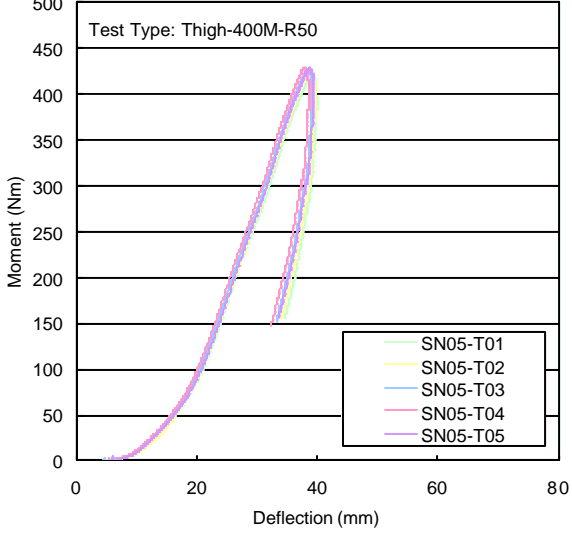
Flex-G (Serial Number:06)



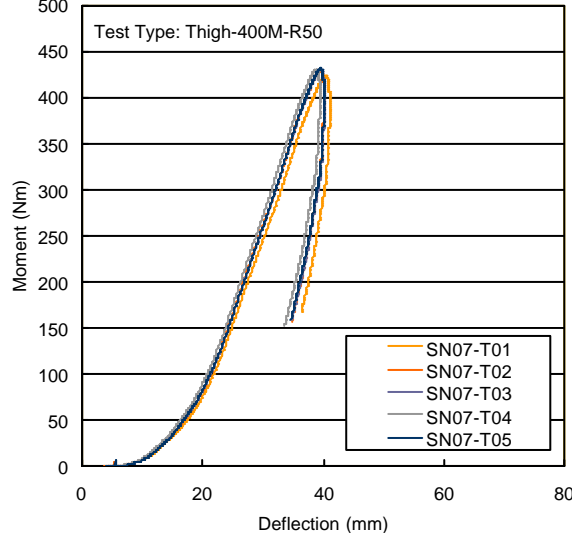
Flex-G (Serial Number:03)



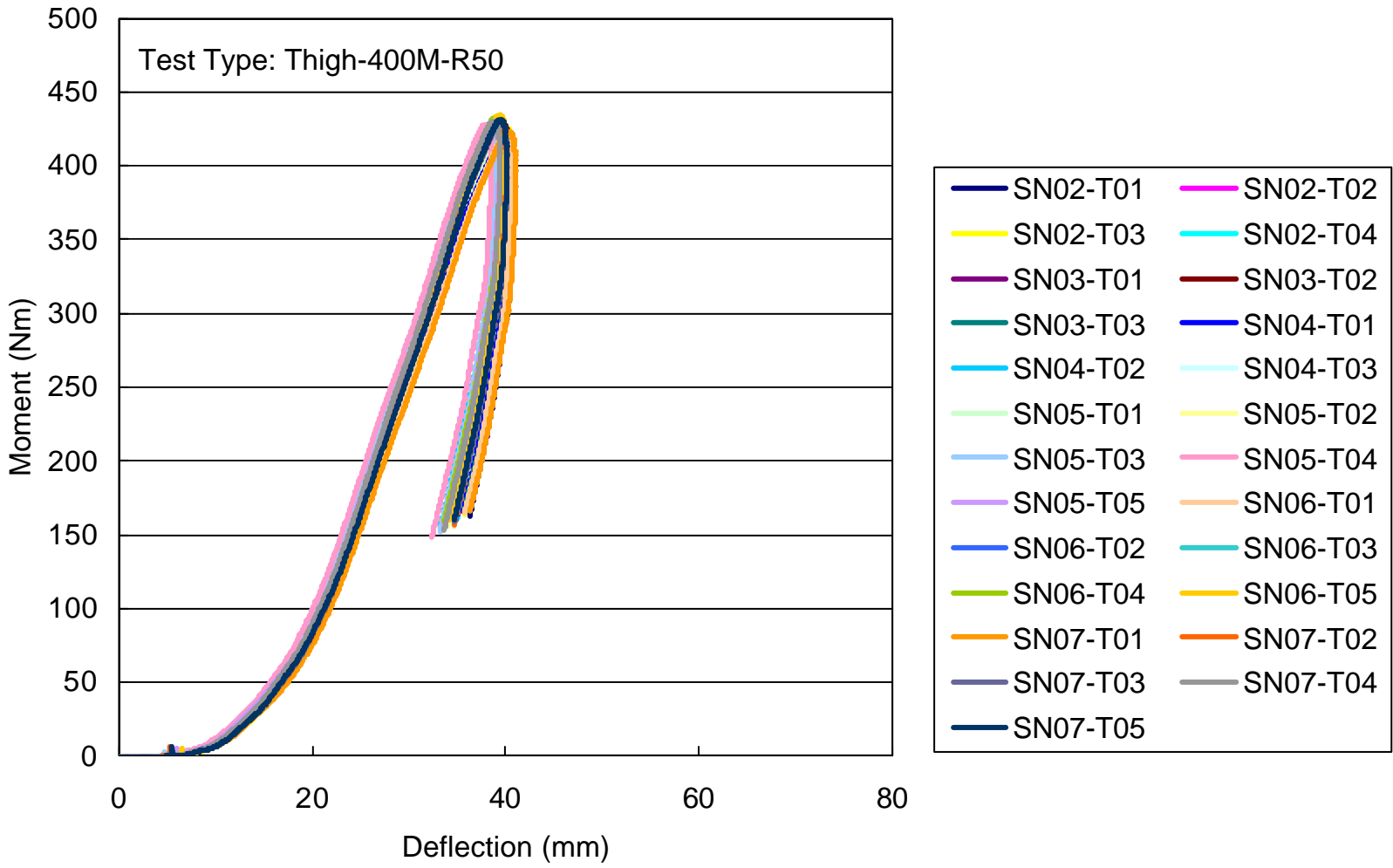
Flex-G (Serial Number:05)



Flex-G (Serial Number:07)

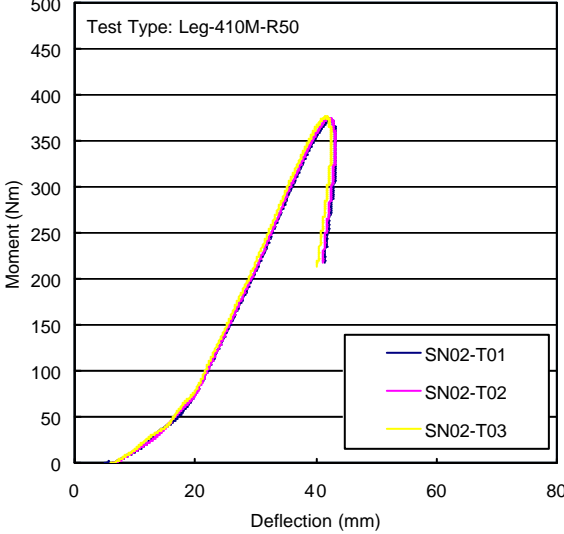


Repeatability and Reproducibility for Thigh (Flex-G)

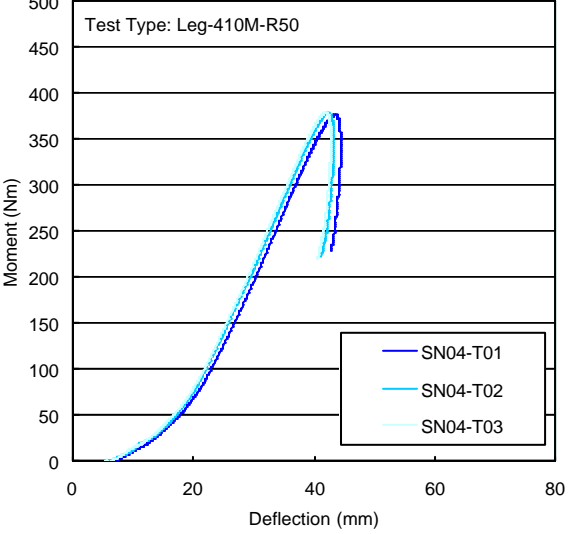


Repeatability and Reproducibility for Leg (Flex-G)

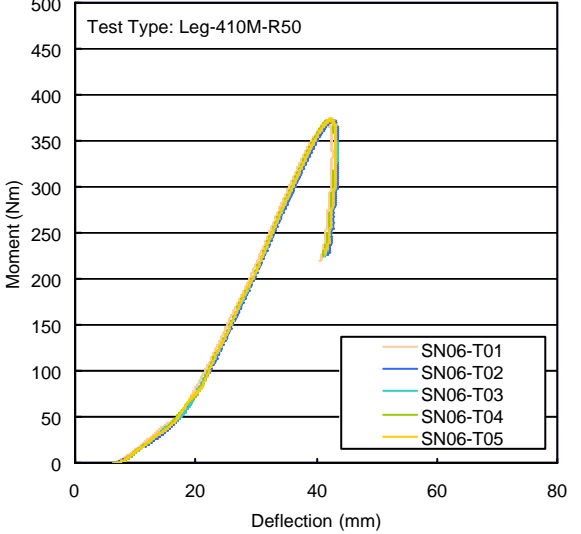
Flex-G (Serial Number:02)



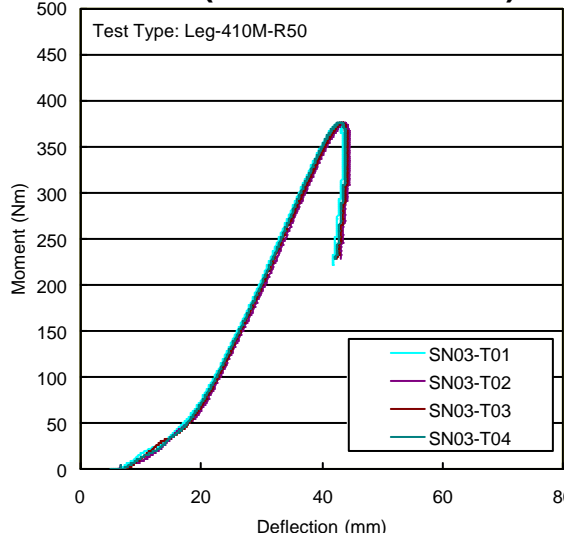
Flex-G (Serial Number:04)



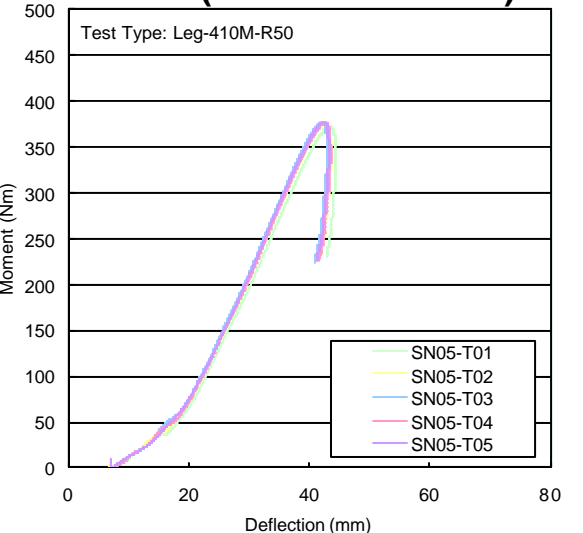
Flex-G (Serial Number:06)



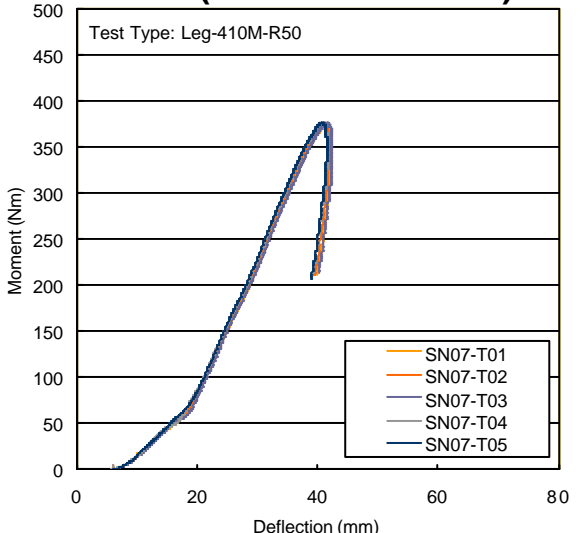
Flex-G (Serial Number:03)



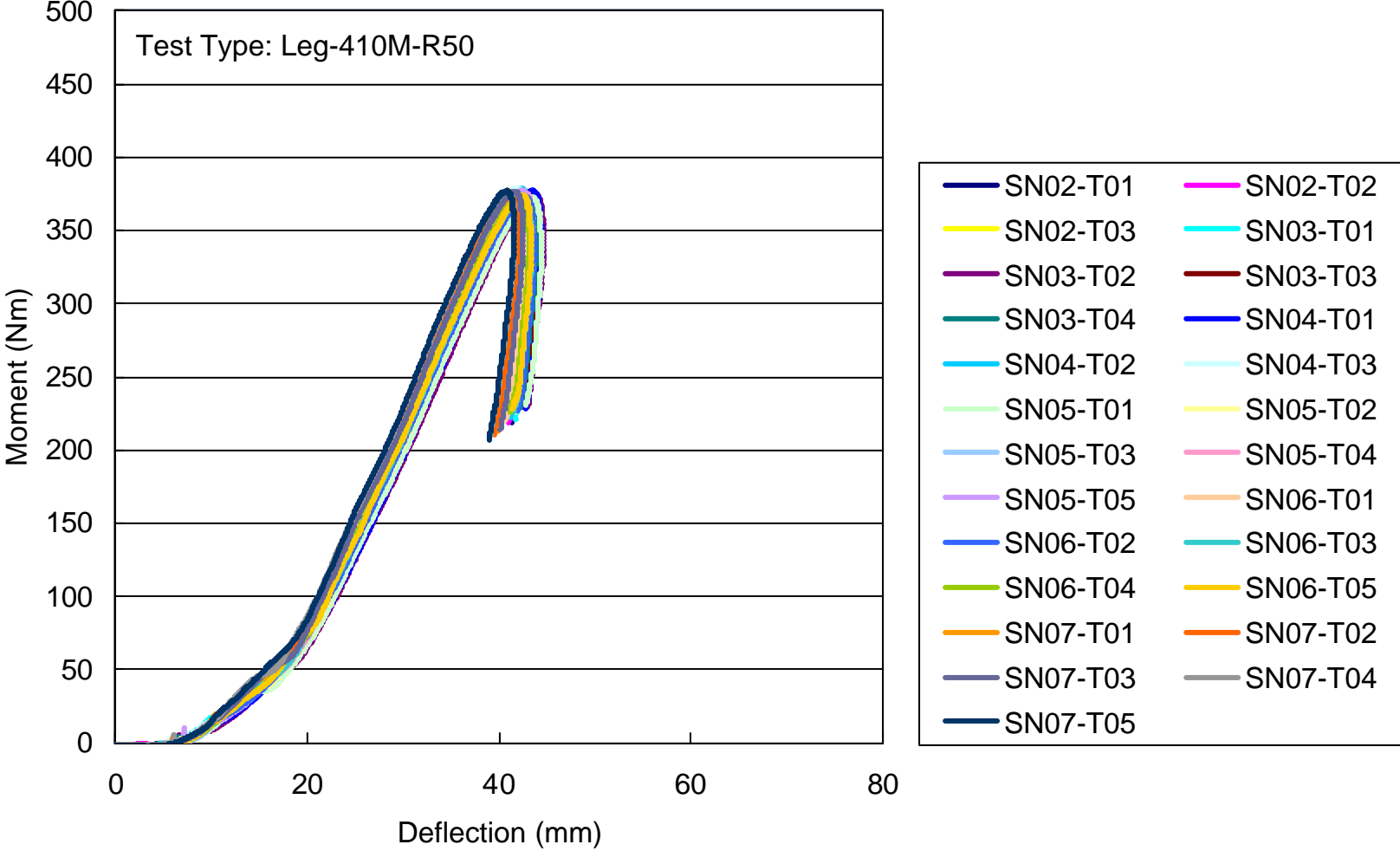
Flex-G (Serial Number:05)



Flex-G (Serial Number:07)

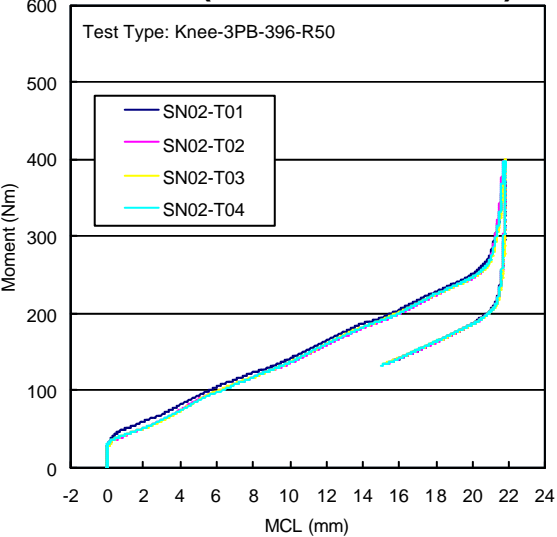


Repeatability and Reproducibility for Leg (Flex-G)

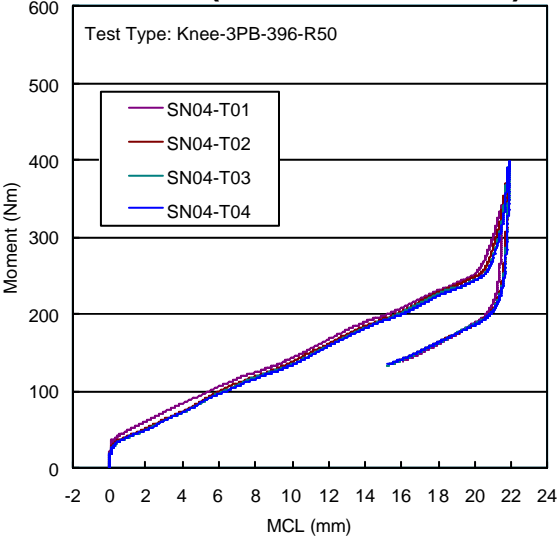


Repeatability and Reproducibility for Knee (Flex-G)

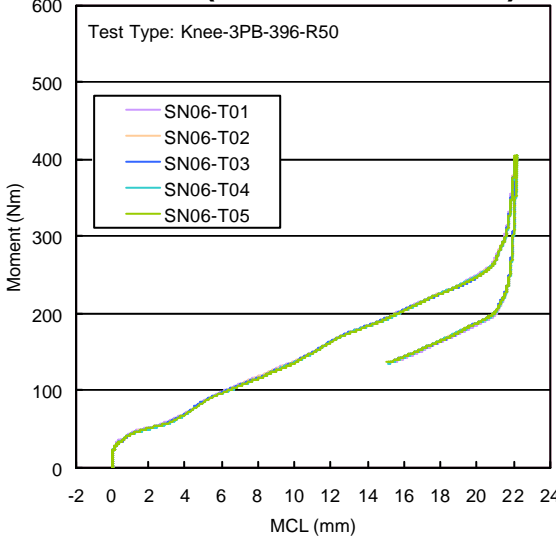
Flex-G (Serial Number:02)



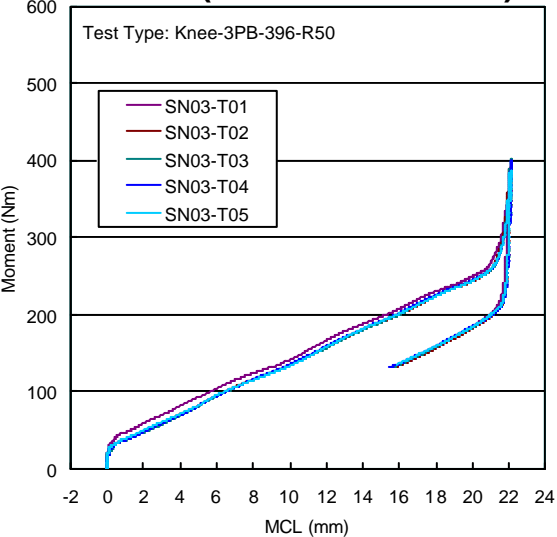
Flex-G (Serial Number:04)



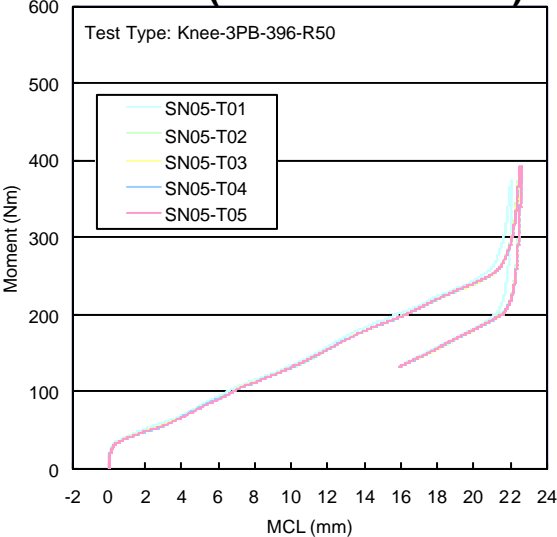
Flex-G (Serial Number:06)



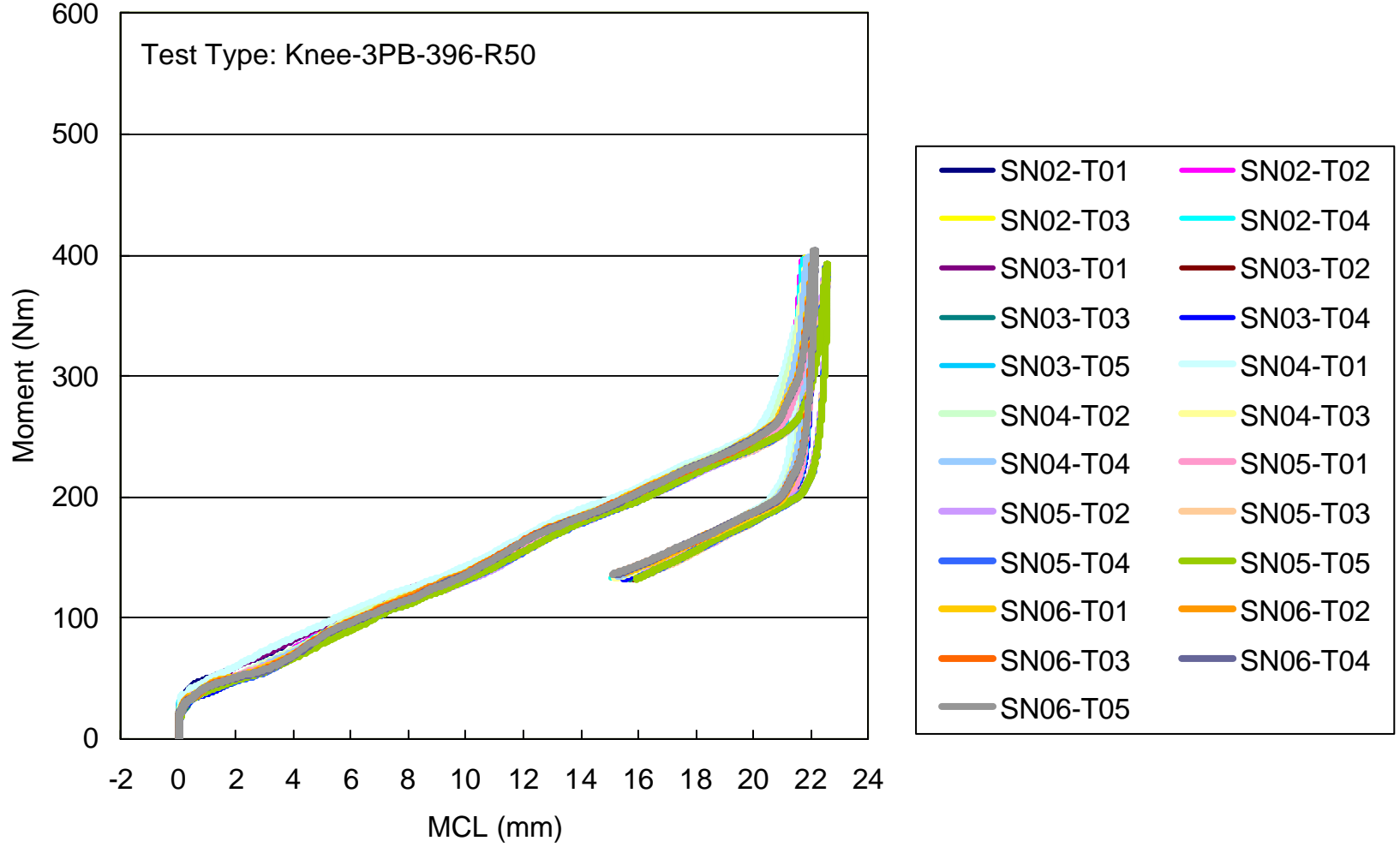
Flex-G (Serial Number:03)



Flex-G (Serial Number:05)

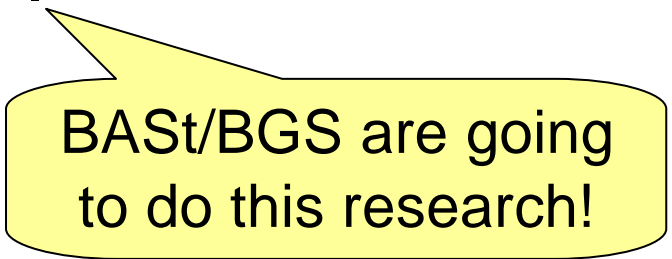


Repeatability and Reproducibility for Knee (Flex-G)



CONCLUSIONS

- Flex-G (Thigh, Knee, Leg) has high repeatability and reproducibility.
- As a next step, investigation of repeatability and reproducibility of Flex-G under assembly level (Thigh-Knee-Leg complex) .



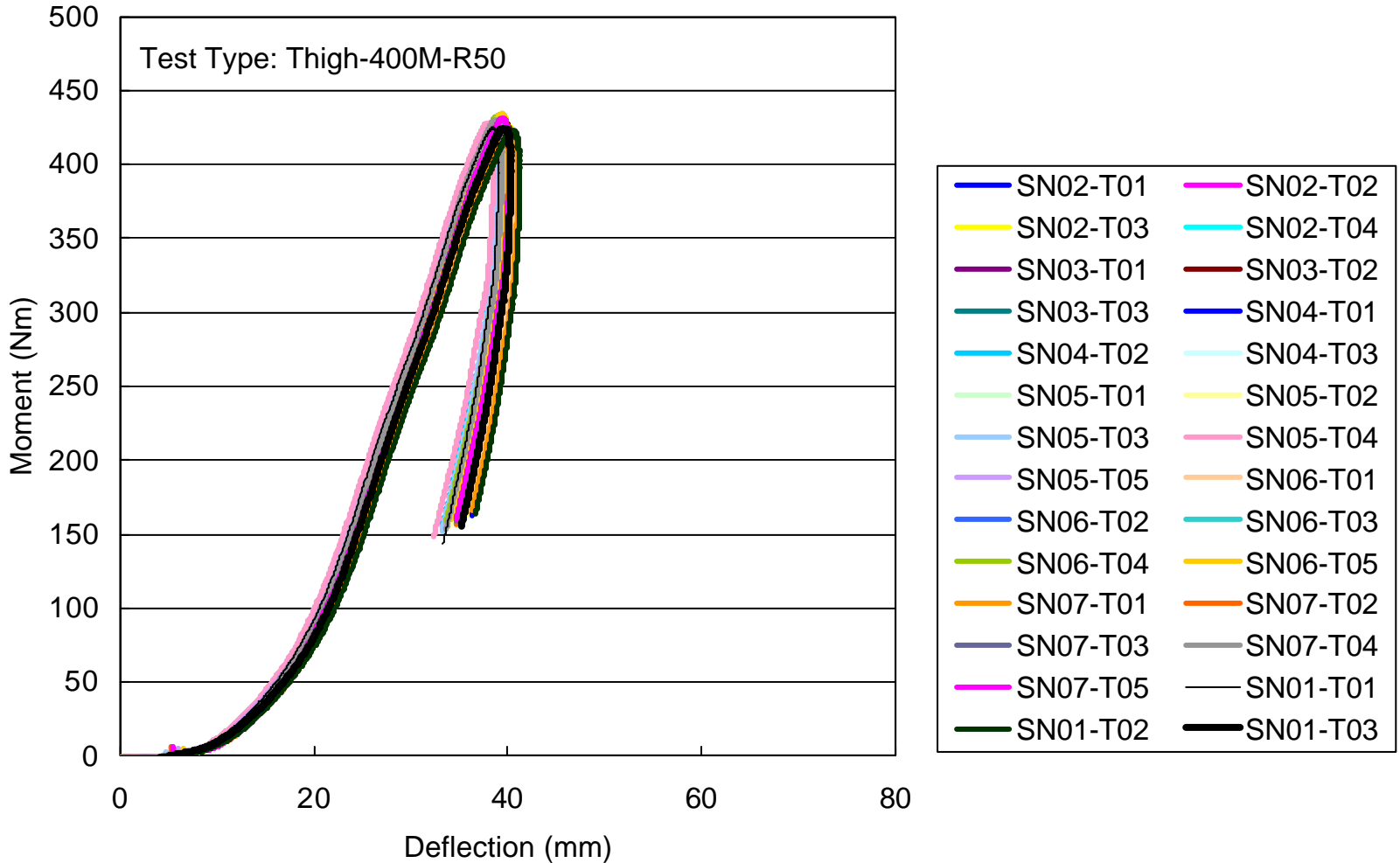
BASt/BGS are going to do this research!

Thank you for your attention.

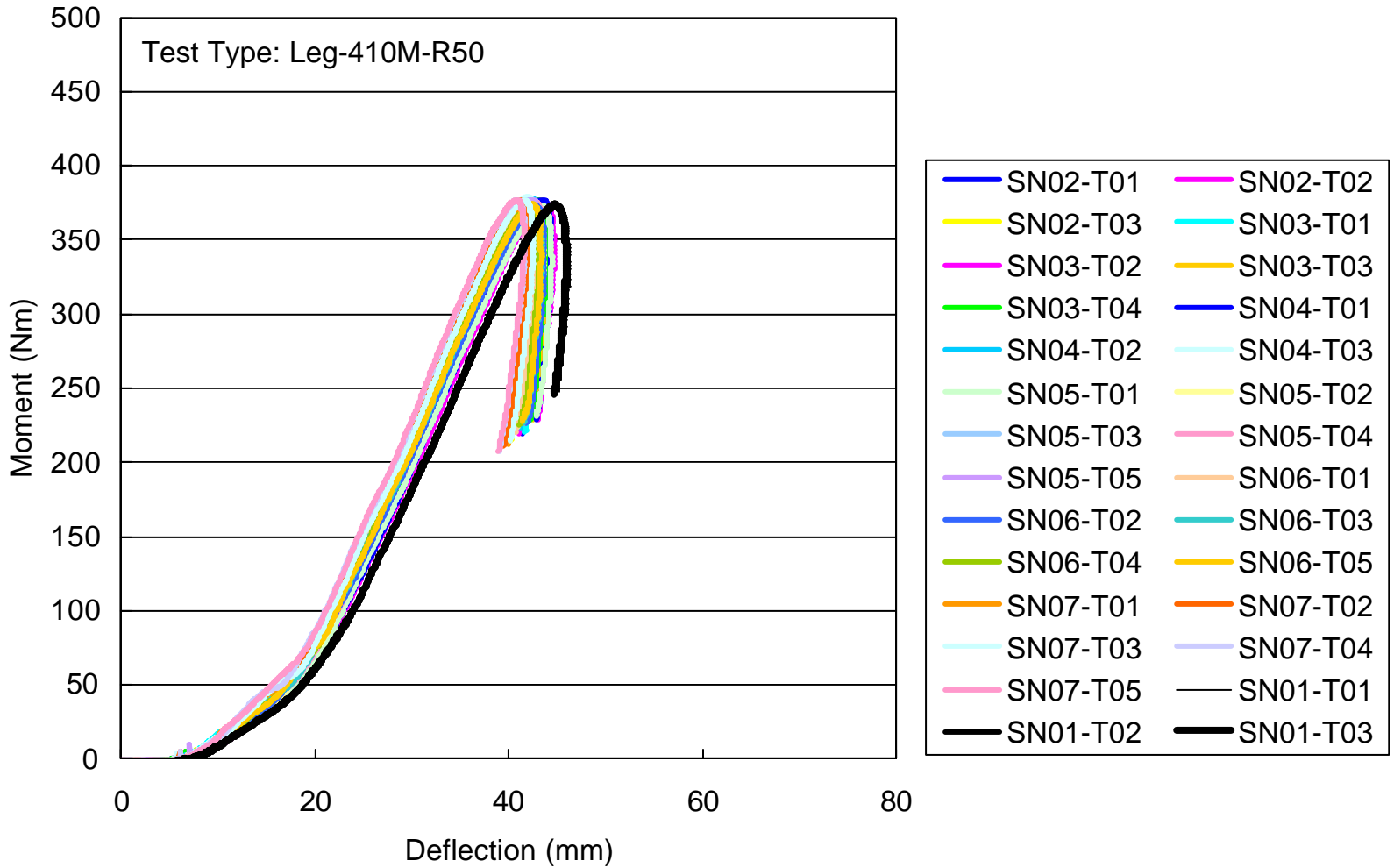
Appendix

**Comparison between the Flex-G Serial
Number 01 (SN01) and the Flex-G Serial
Number 02 (SN02) or later responses**

Thigh responses



Leg responses



Knee responses

