

Kevlar test data

March 19, 2003

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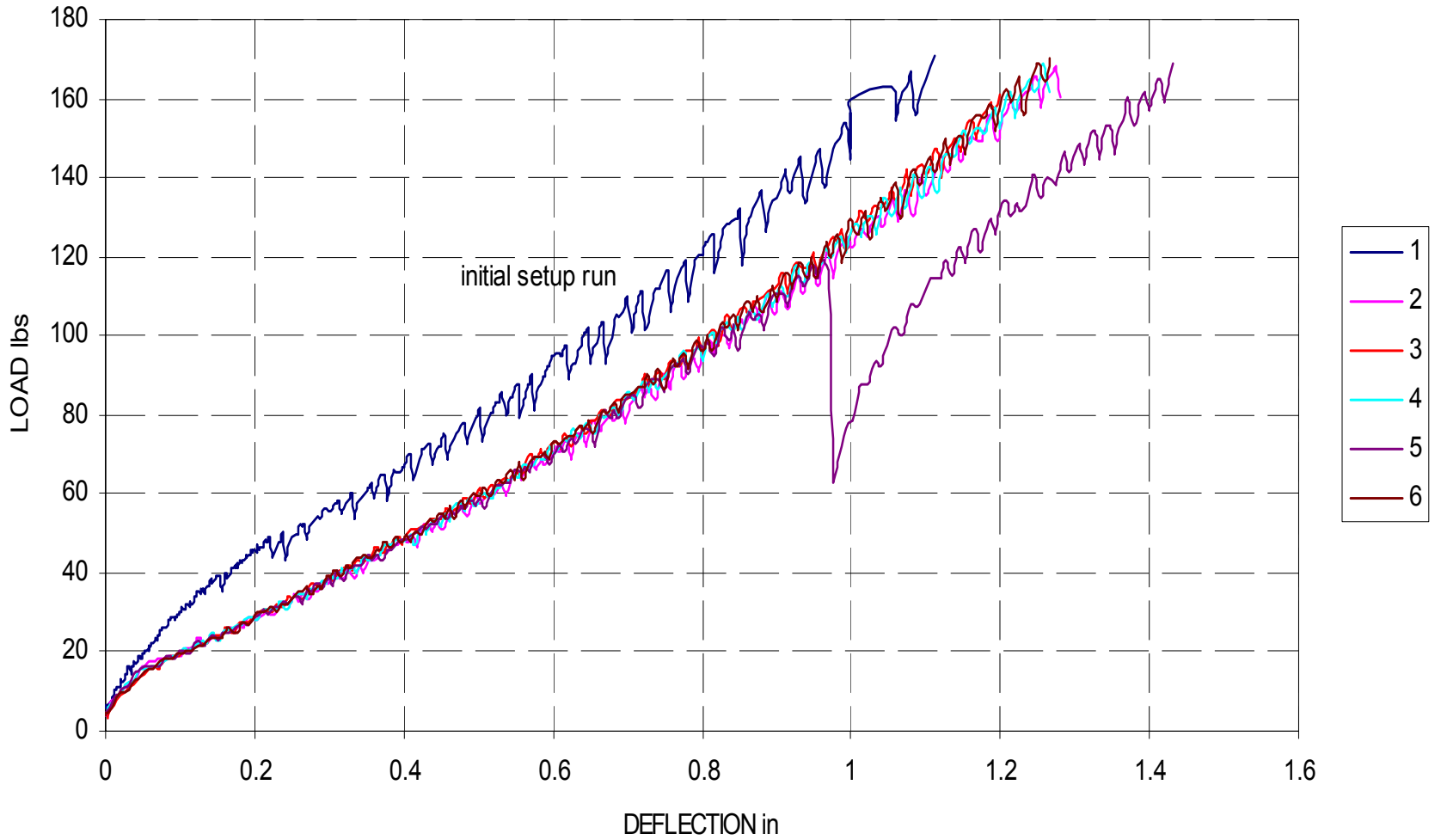
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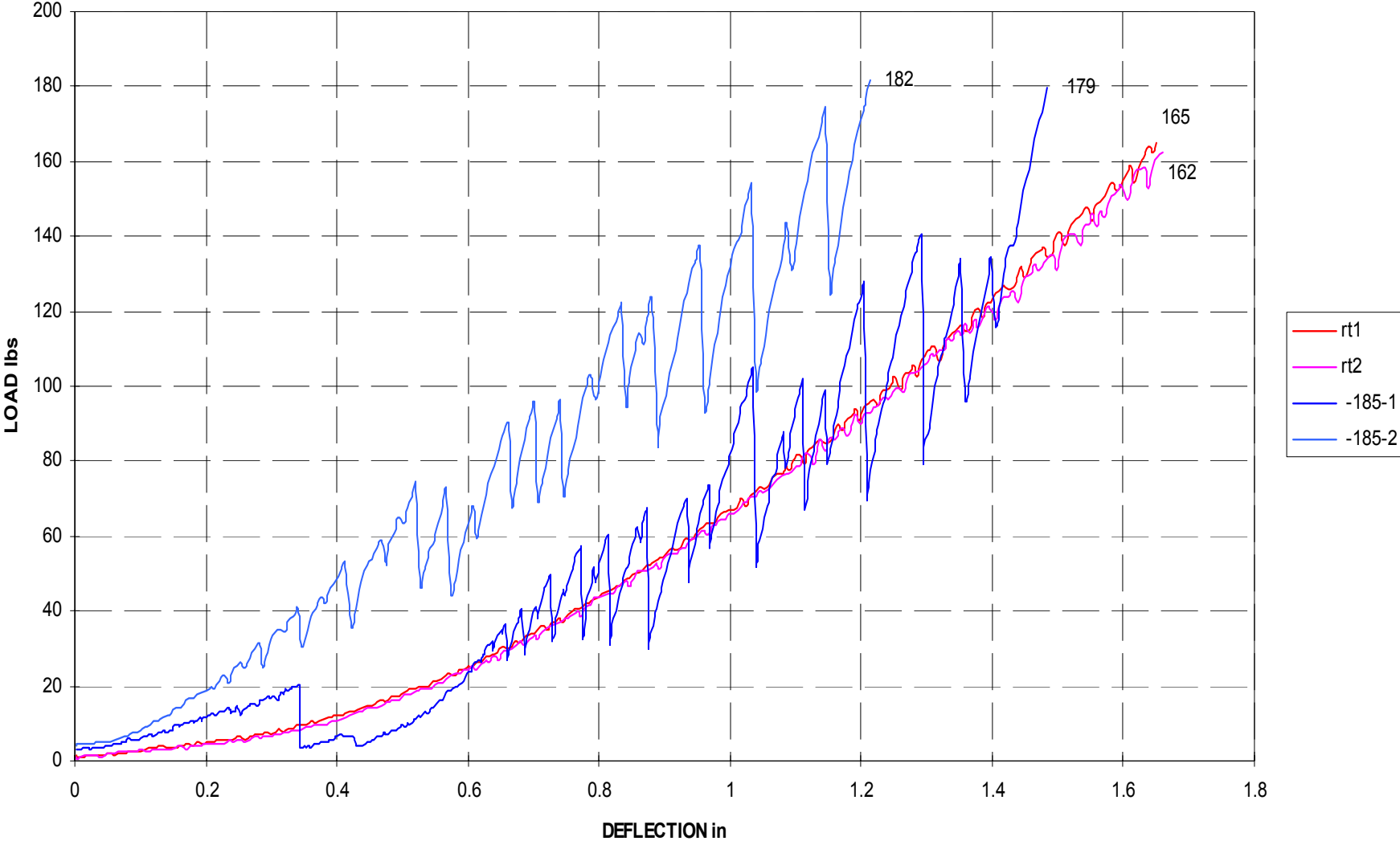
Kevlar characteristics

- Kevlar 29 type 964
- Braided 400 denier
- 12 carrier braid
- Average area = 0.0006 in^2

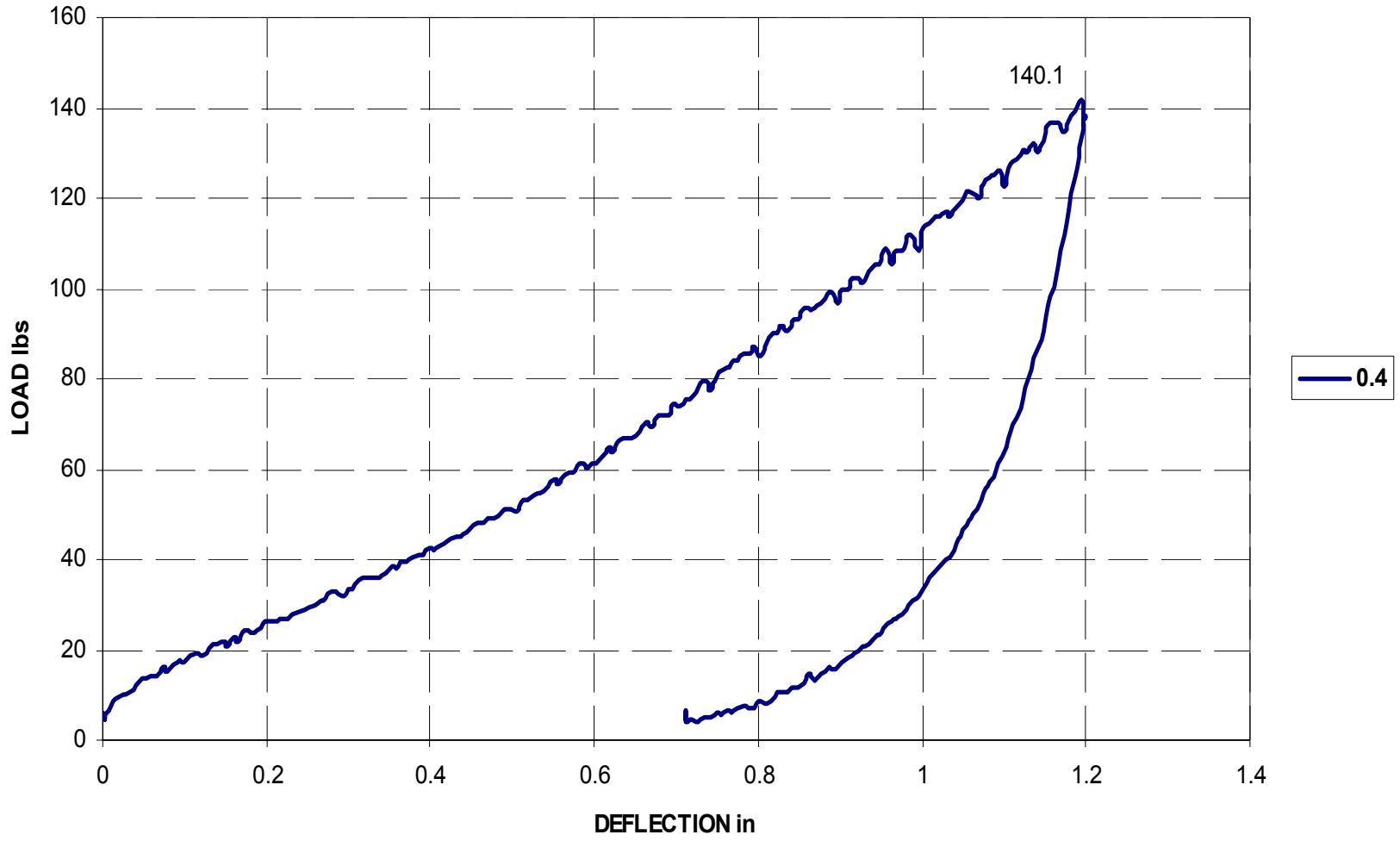
KEVLAR STRING (KAPSTAN GRIPS 4 in GL W/ 5 lb PRE-LOAD)



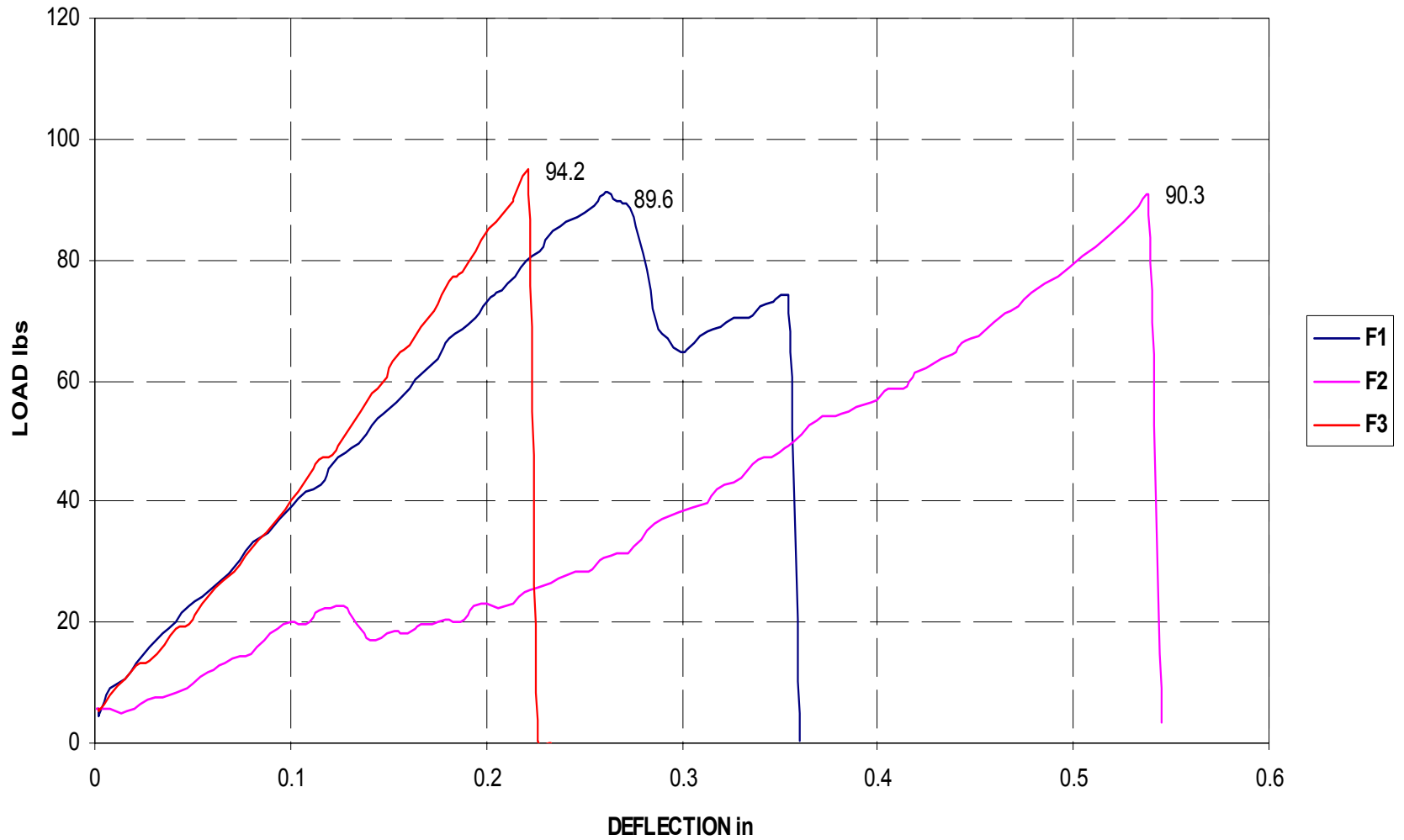
KEVLAR STRING



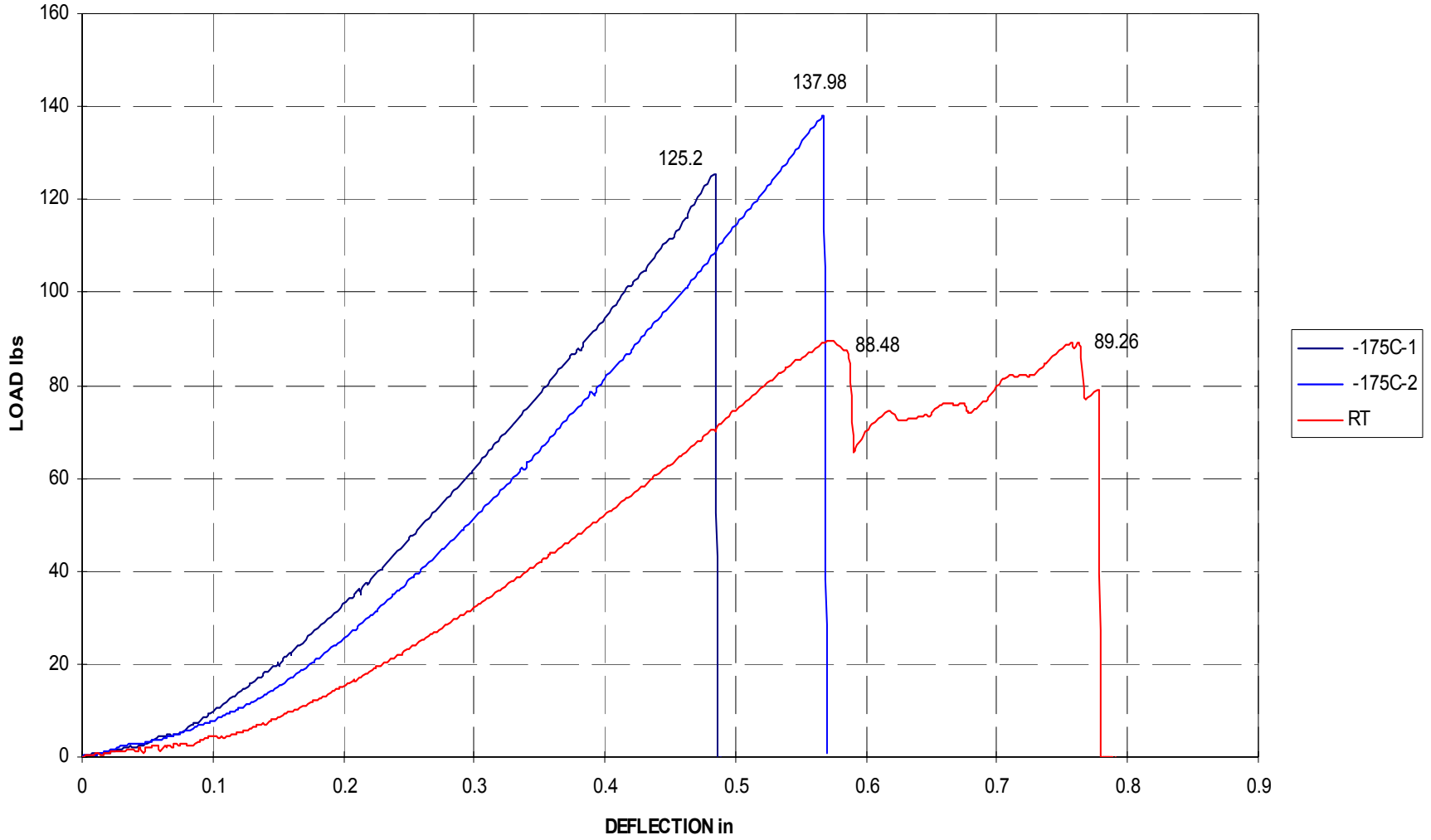
KEVLAR STRING (CAPSTAN GRIPS 2 in dia.) variable speed



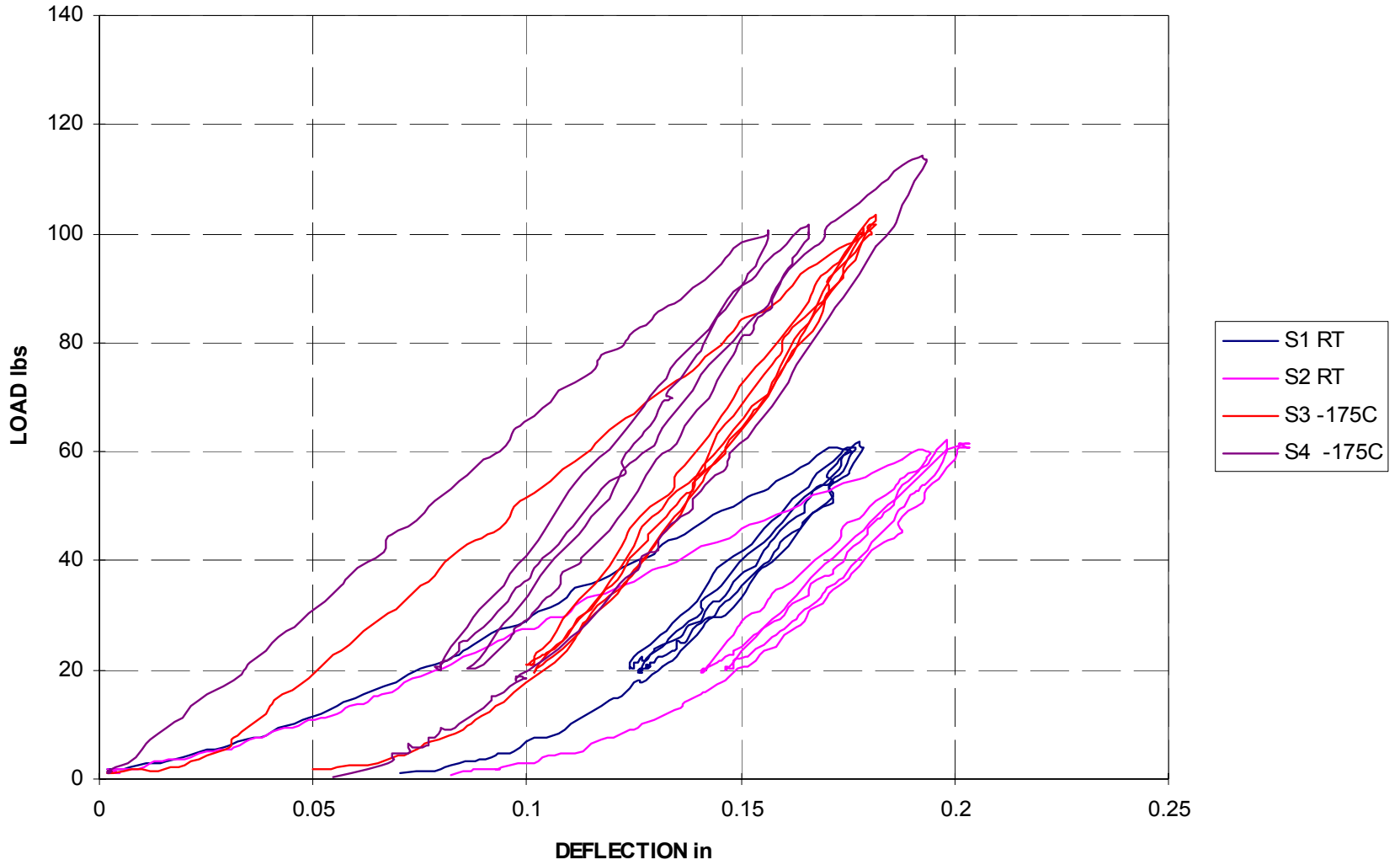
KEVLAR STRING (FLAT FACED GRIPS (.4 in/min))



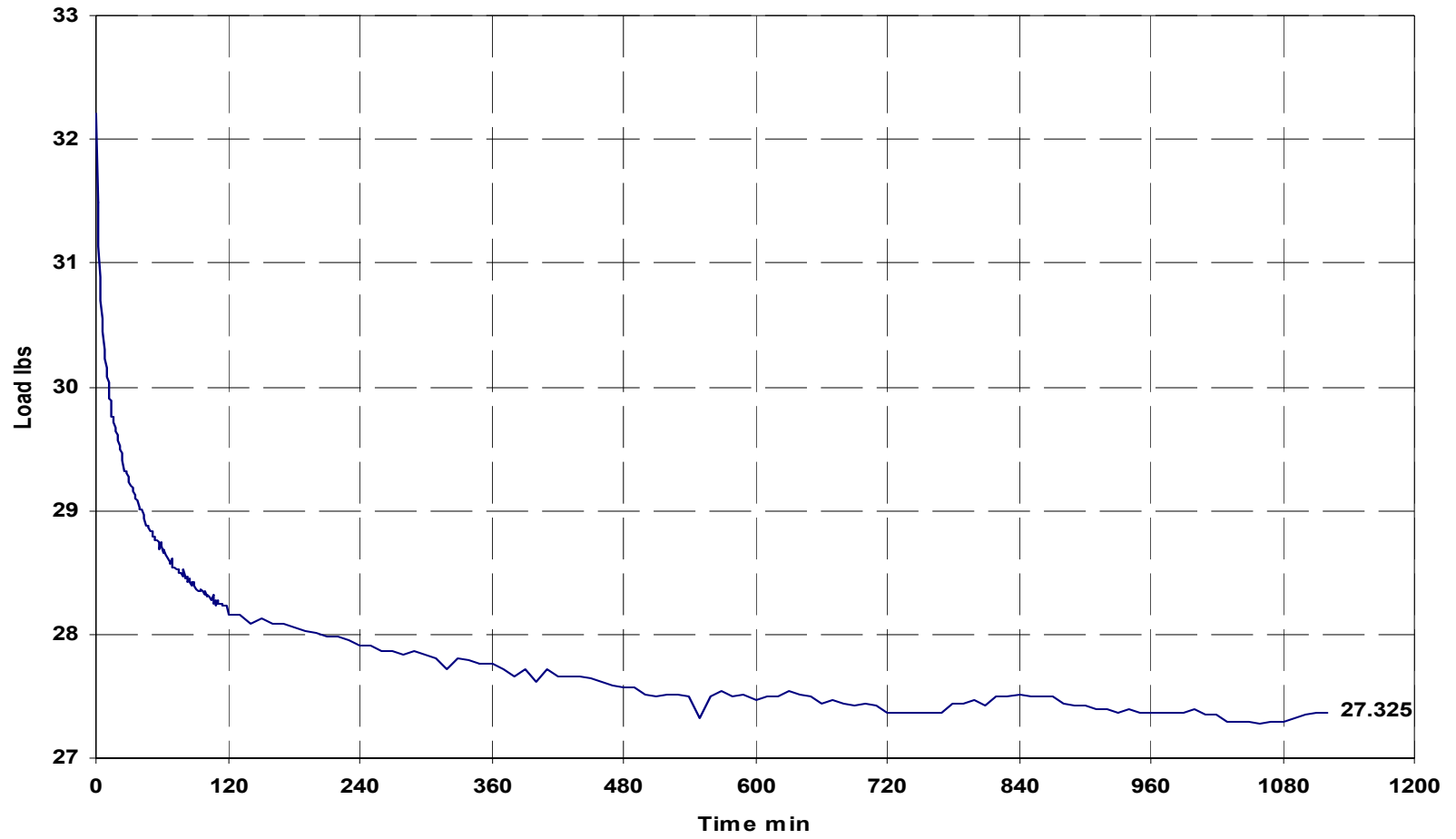
FLAT GRIPS 12 in GL



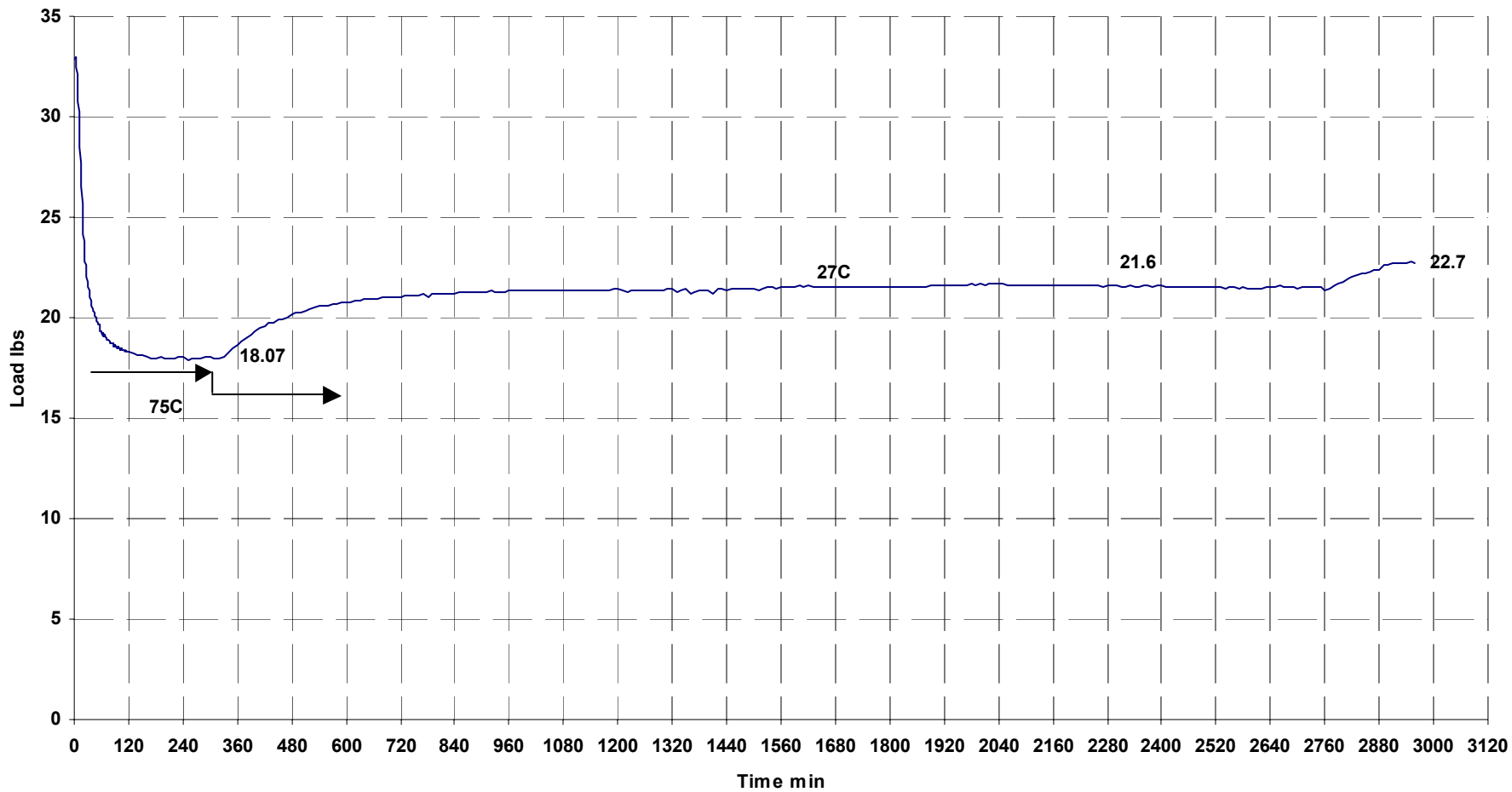
KEVLAR STRING 0-60-0-60-0 loading



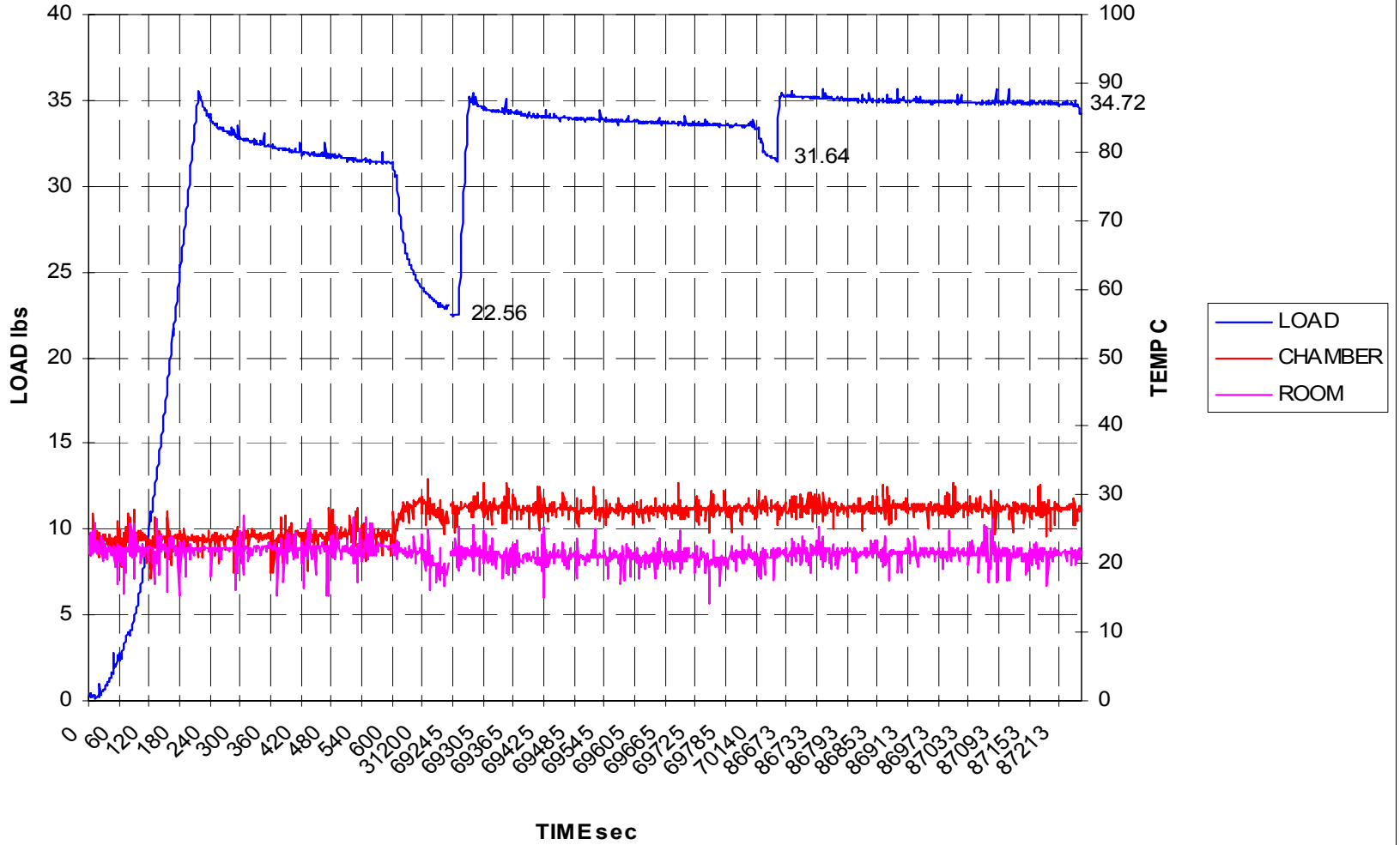
Load Decay (22C)



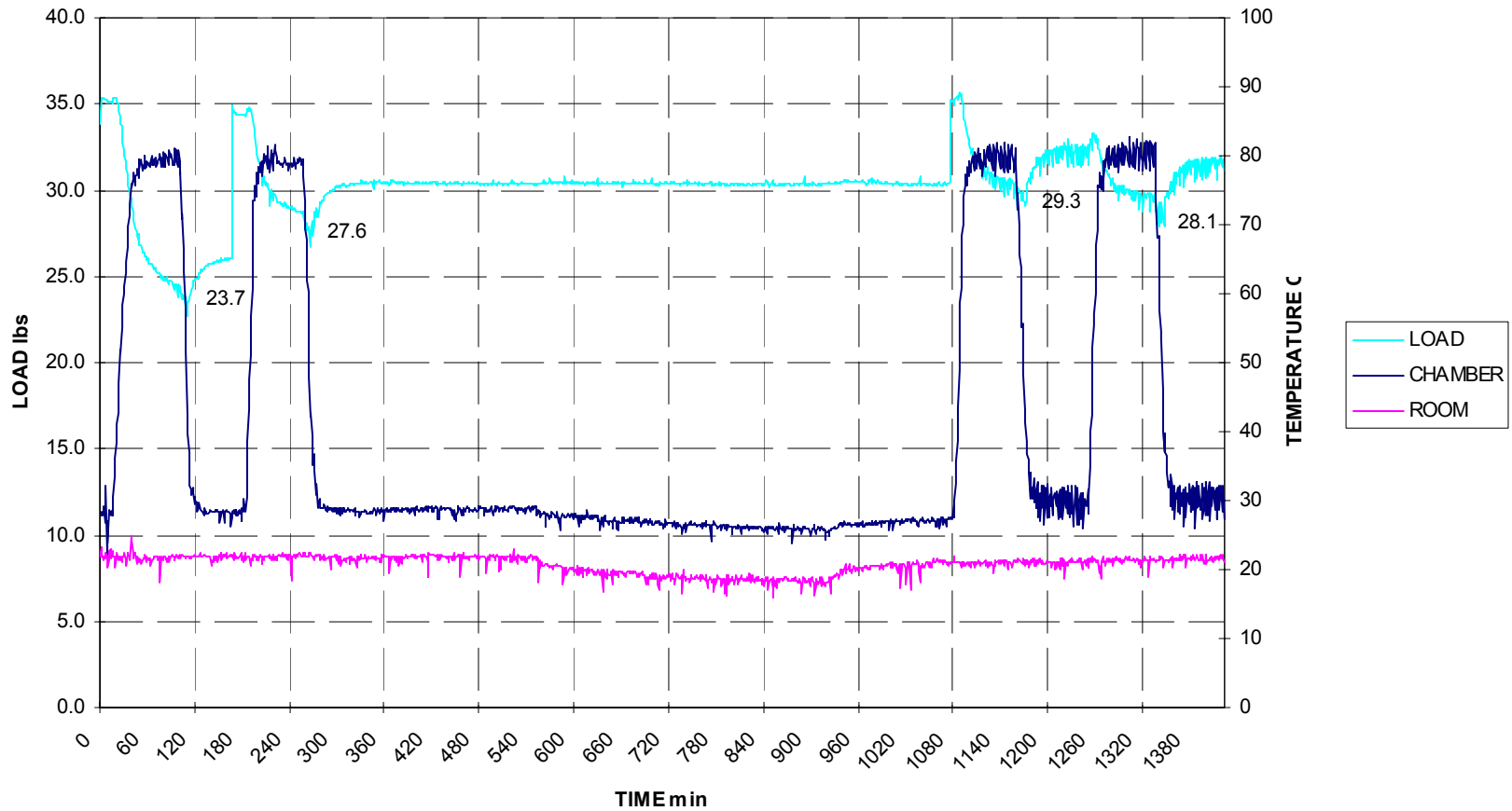
HEAT CYCLE



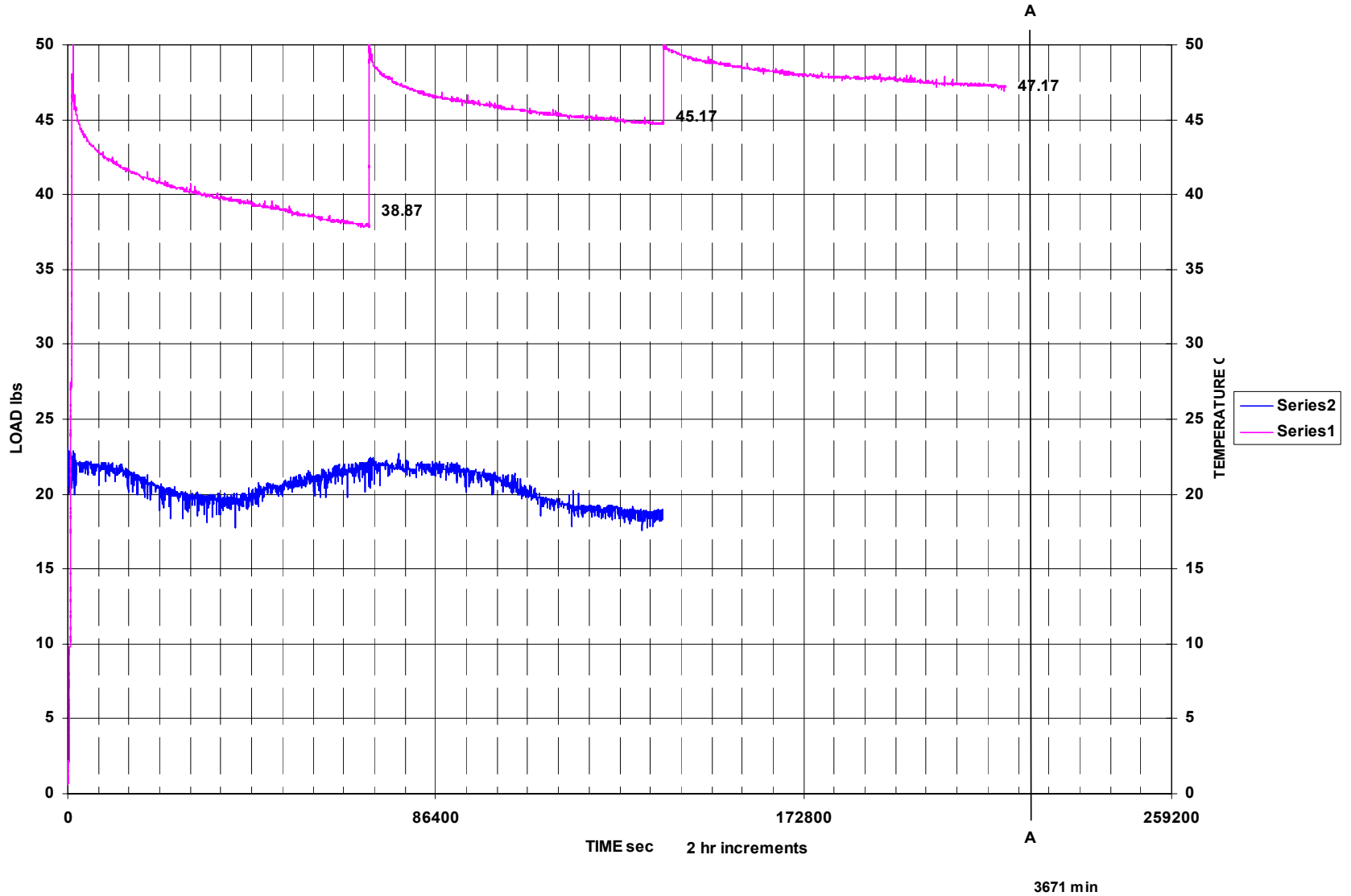
12 in KEVLAR STRING RT RELAXATION



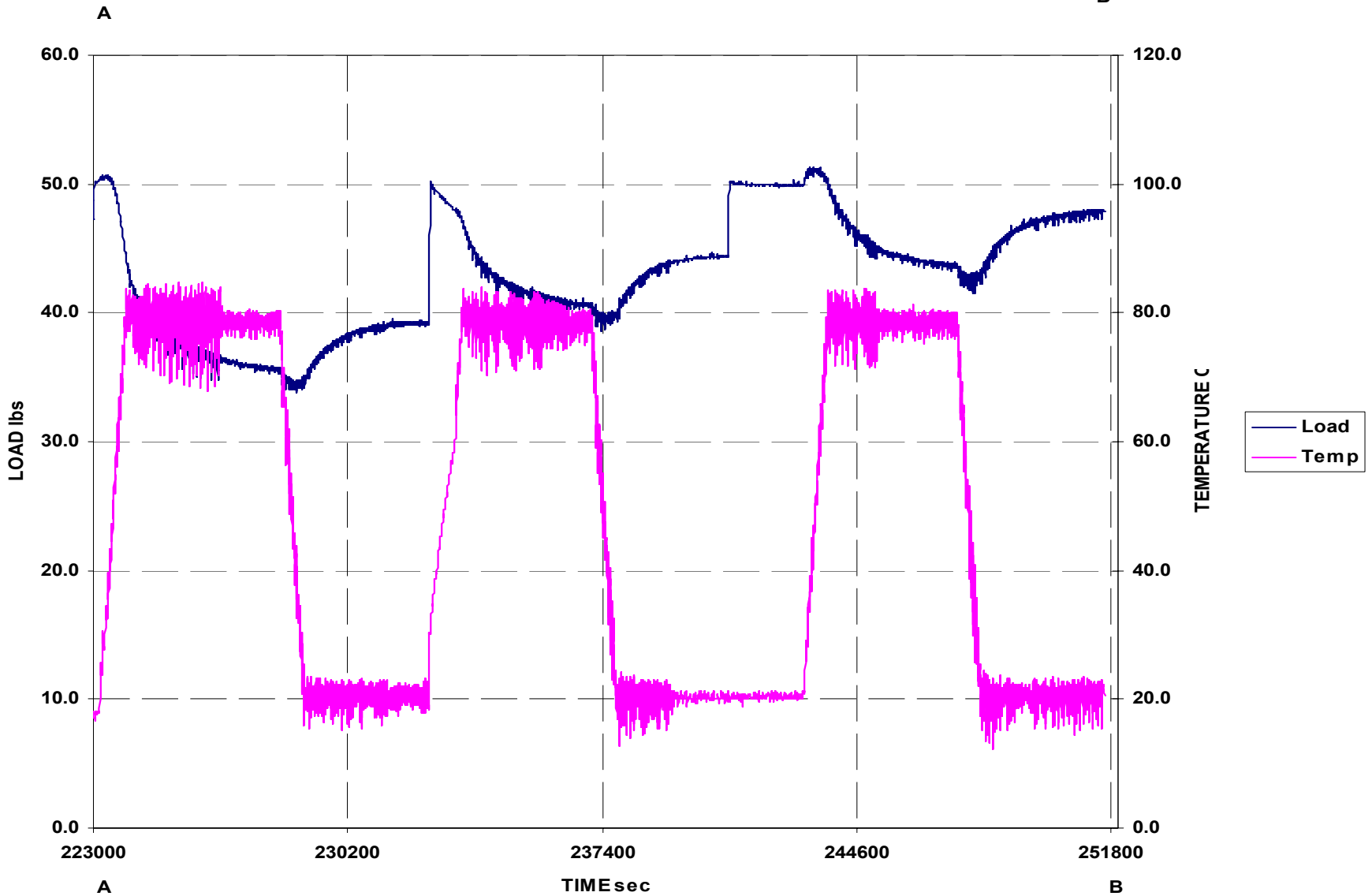
STRING8B LOADRELAXATION WITH THERMAL CYCLE



12 in KEVLAR STRING #11 (load relaxation)

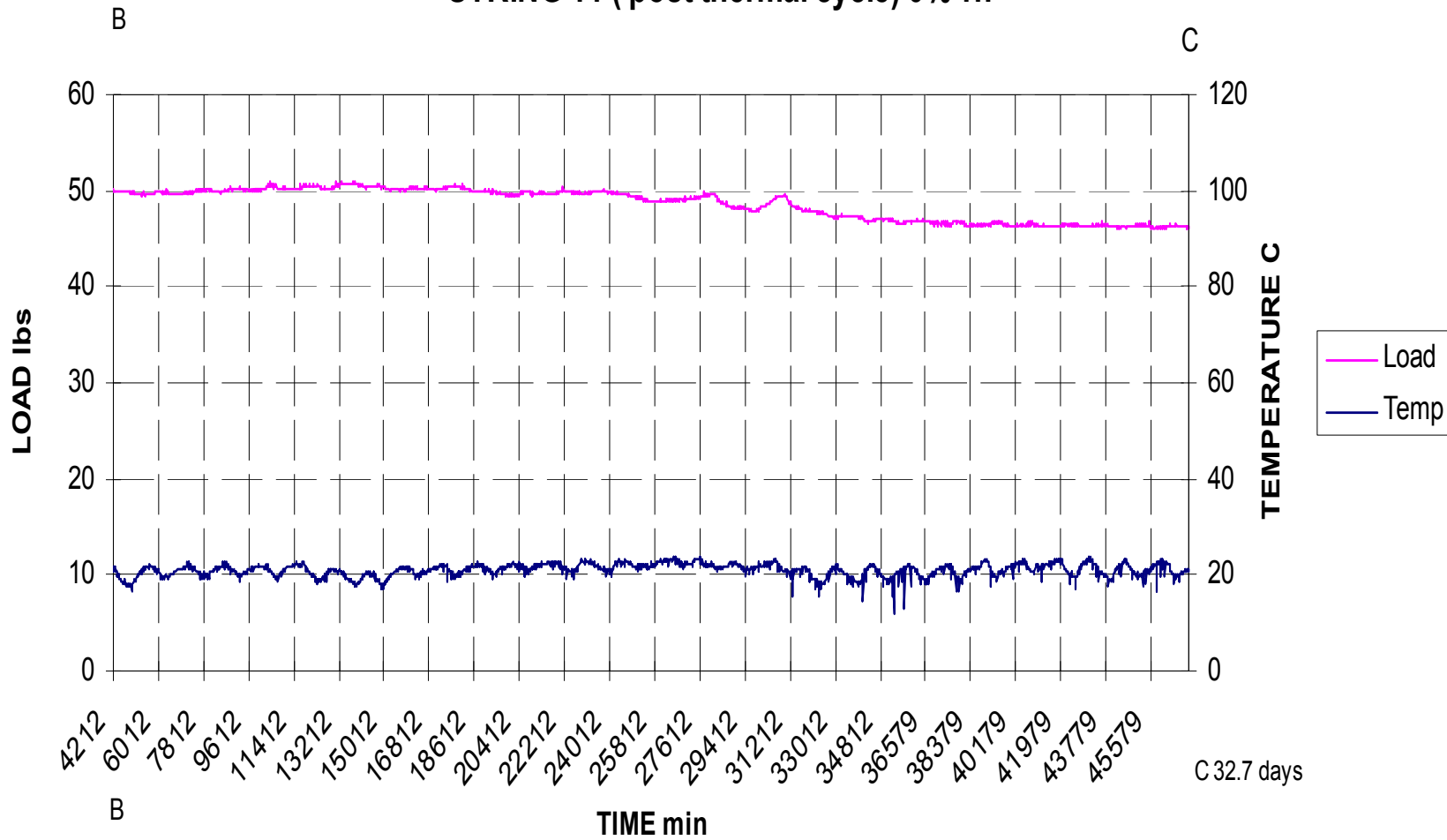


STRING 11 (thermal cycles)

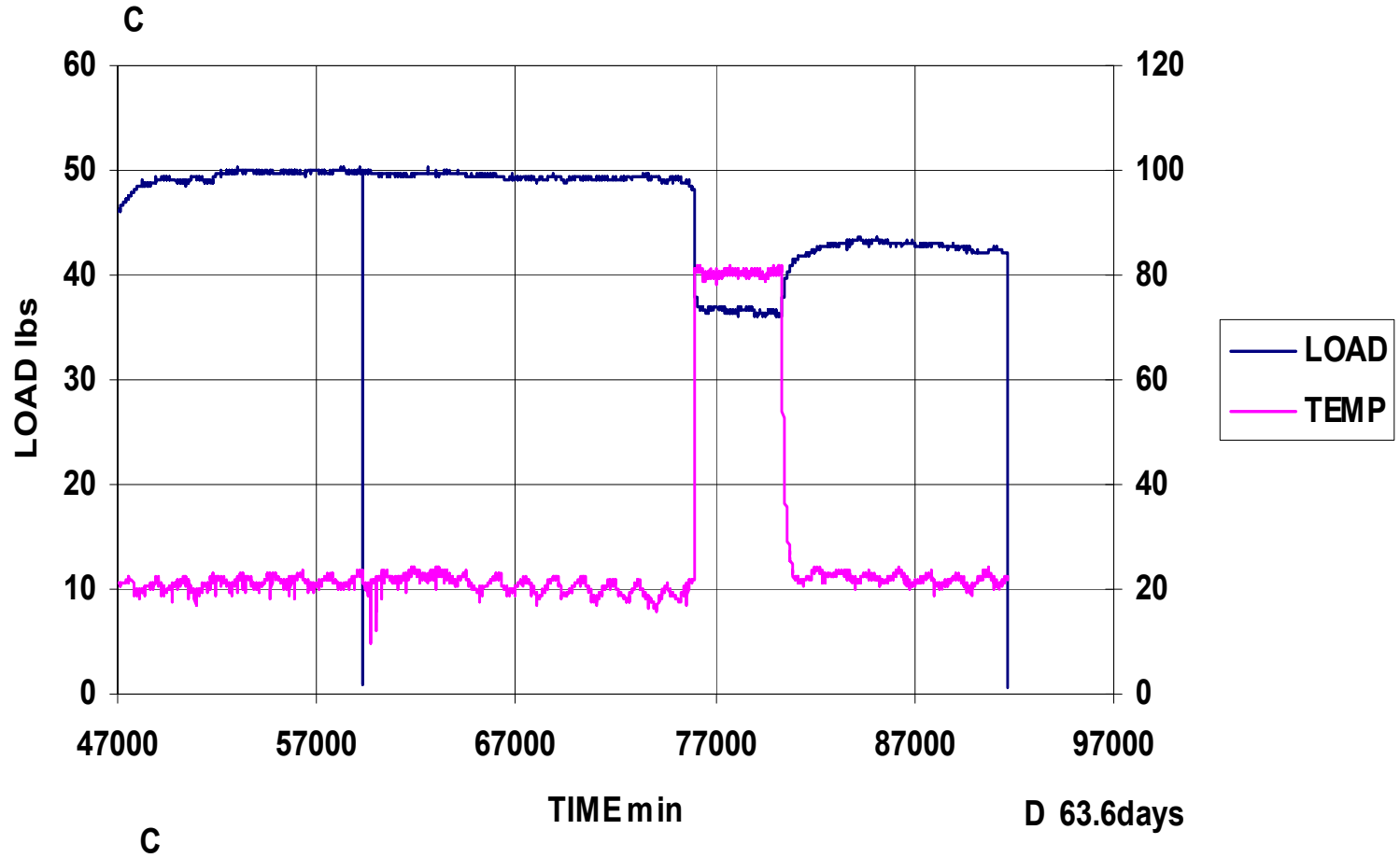


4194 min

STRING 11 (post thermal cycle) 0% rh



STRING 11 (post N2 purge)



Summary

- Kevlar CTE (unconditioned, 25°C to -150°C)
 - -11.9 $\mu\text{m}/\text{m}^\circ\text{C}$ to -14.0 $\mu\text{m}/\text{m}^\circ\text{C}$
- Kevlar CTE (conditioned, 25°C to -150°C)
 - -12.0 $\mu\text{m}/\text{m}^\circ\text{C}$ to -12.3 $\mu\text{m}/\text{m}^\circ\text{C}$
- Conditioning the kevlar reduces creep considerably