

**Axel Products, Inc.**

Physical Testing  
Services

# Stress Relaxation of Elastomers under Constant Strain

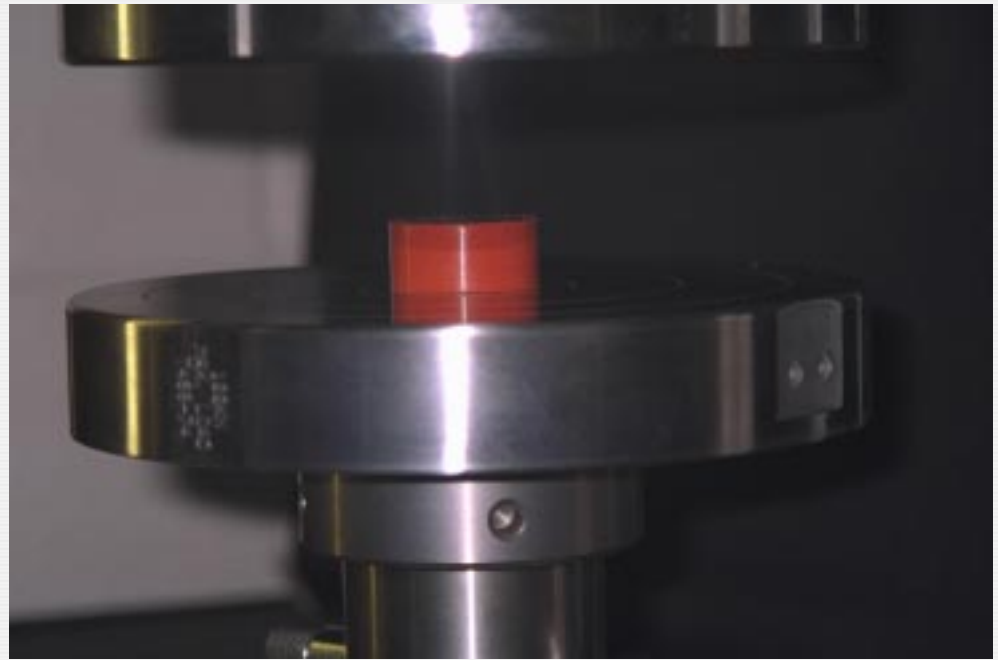
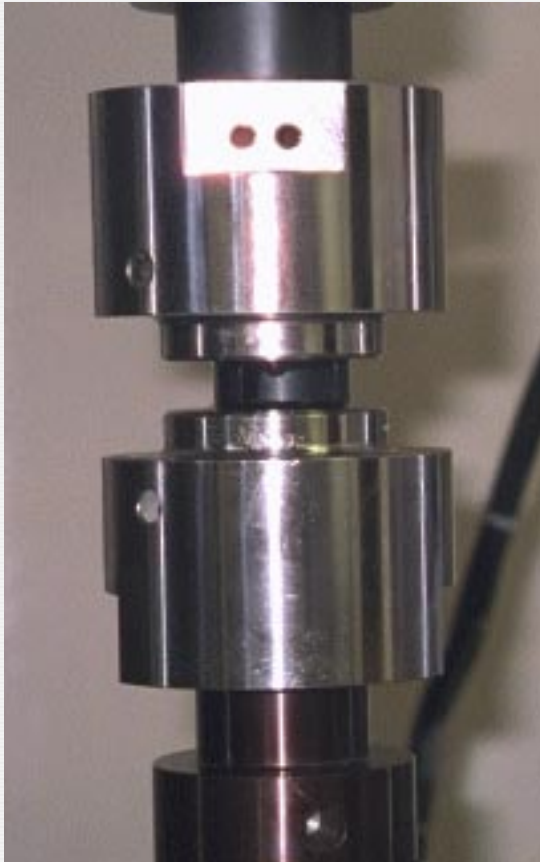
Kurt Miller

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# Overview

- Elastomer Behavior Issues
- Stress Relaxation Problems
- Instrumented Relaxation

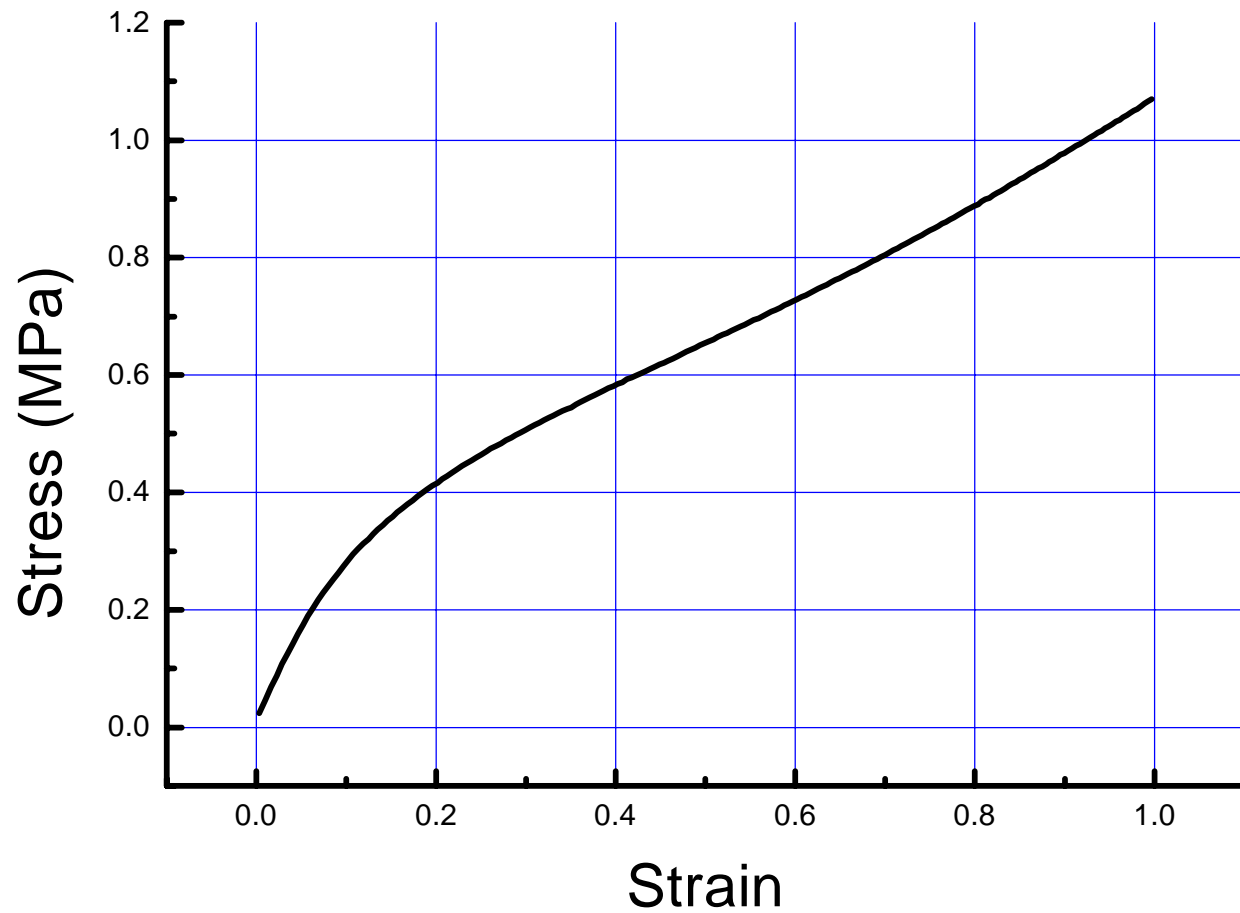
# Compression

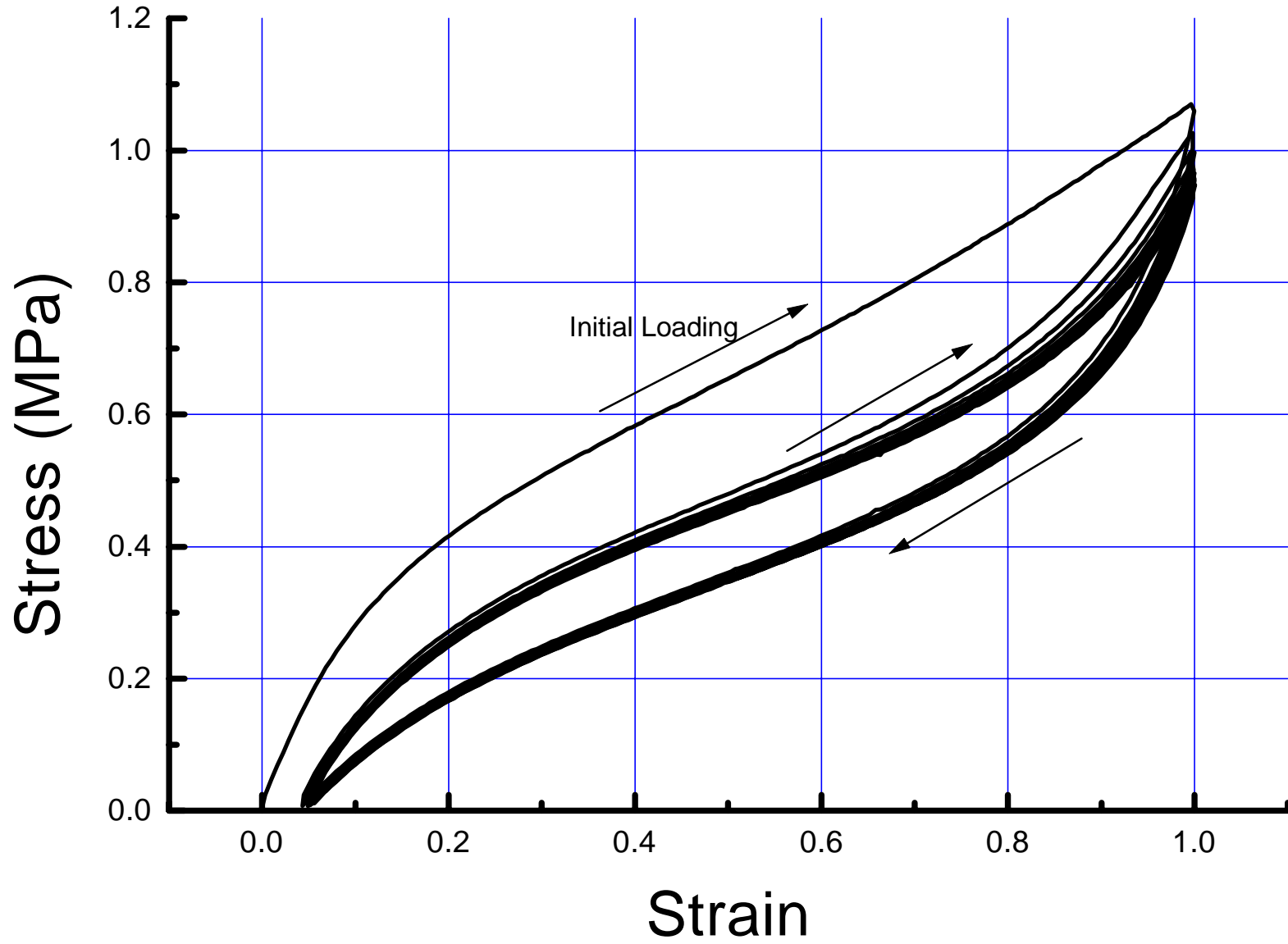


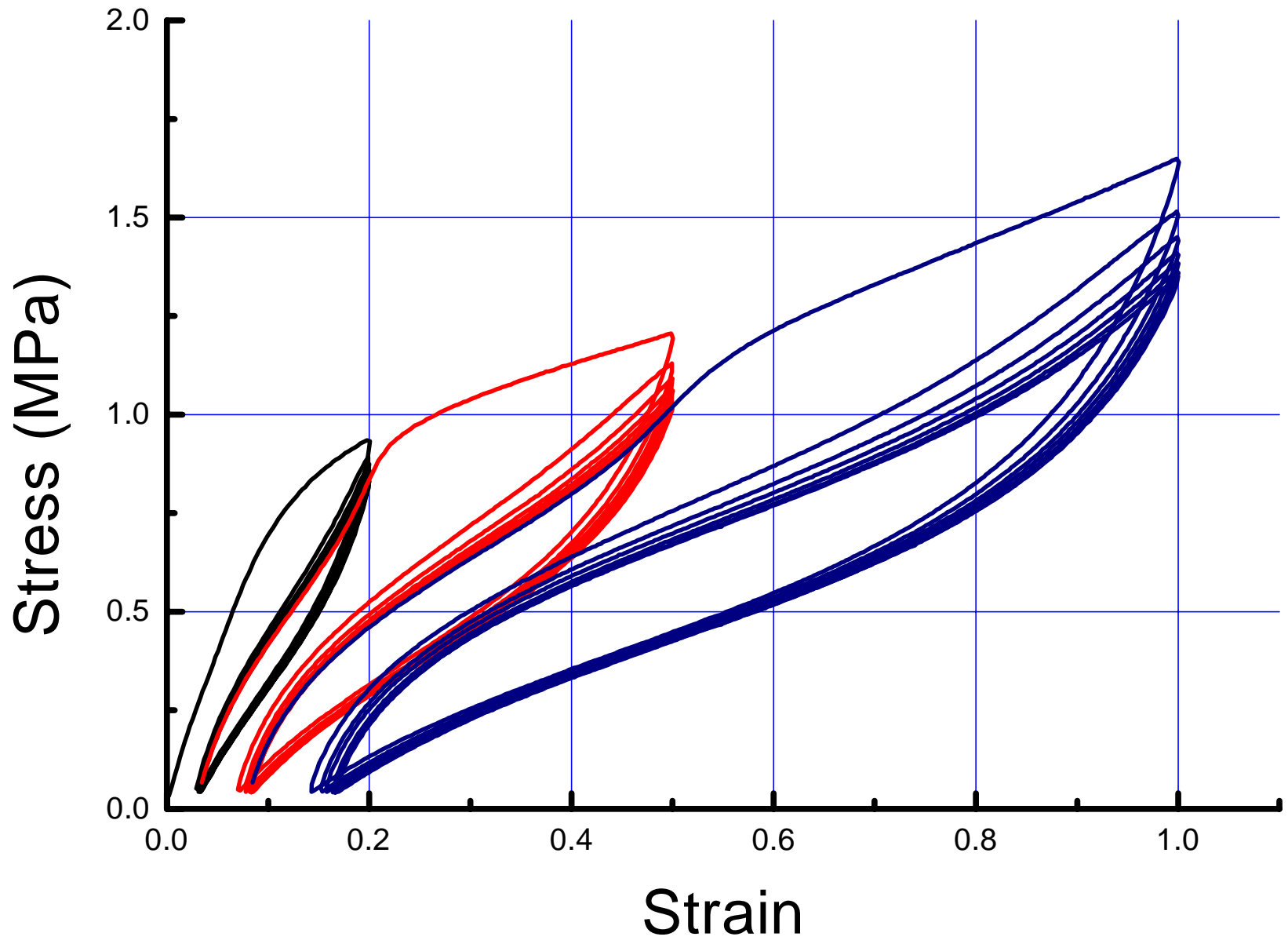
# Not a Pure State of Strain, Shape Matters

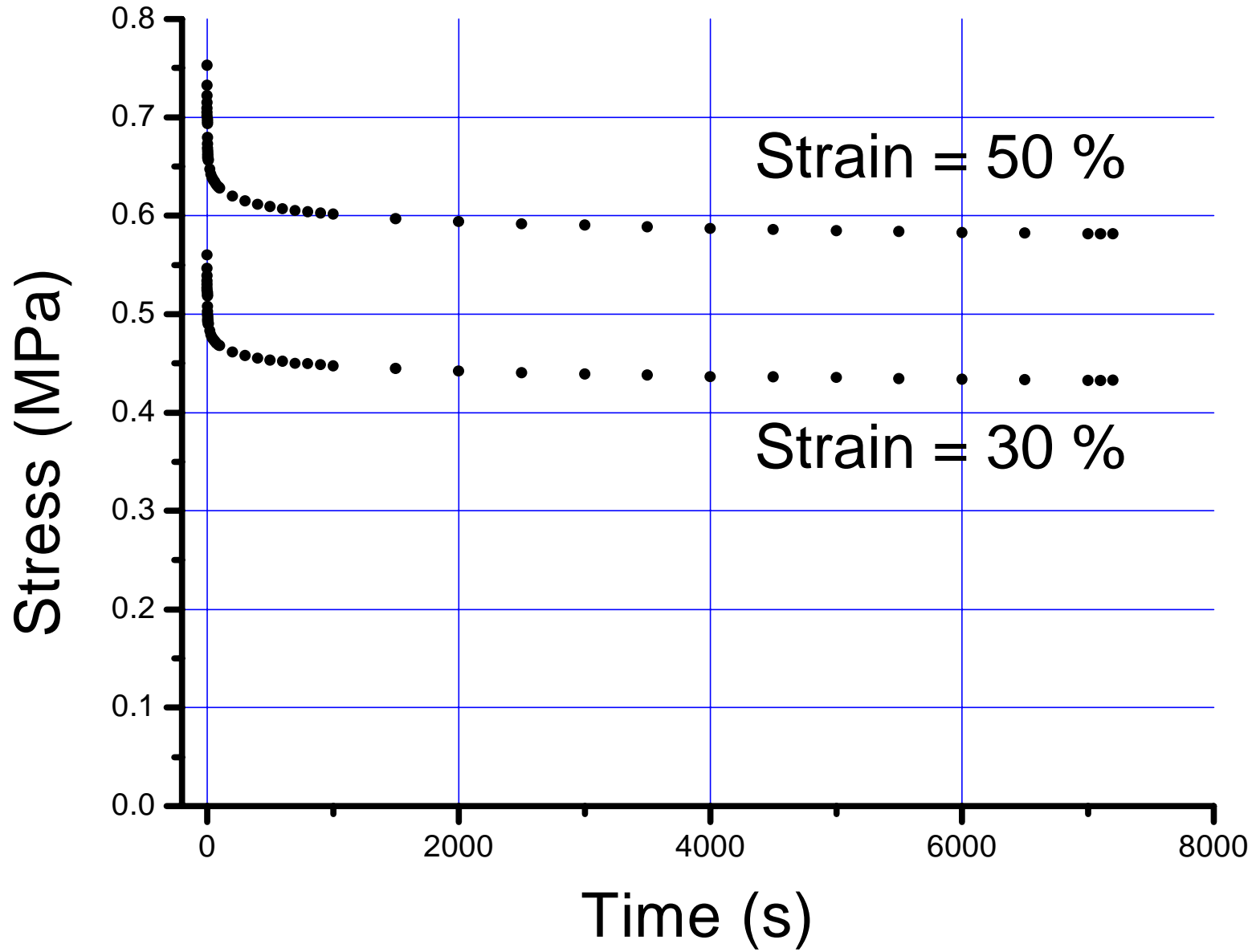
- Simple Tension
- Pure Shear
- Simple Compression
- Volume Change

# Initial Loading







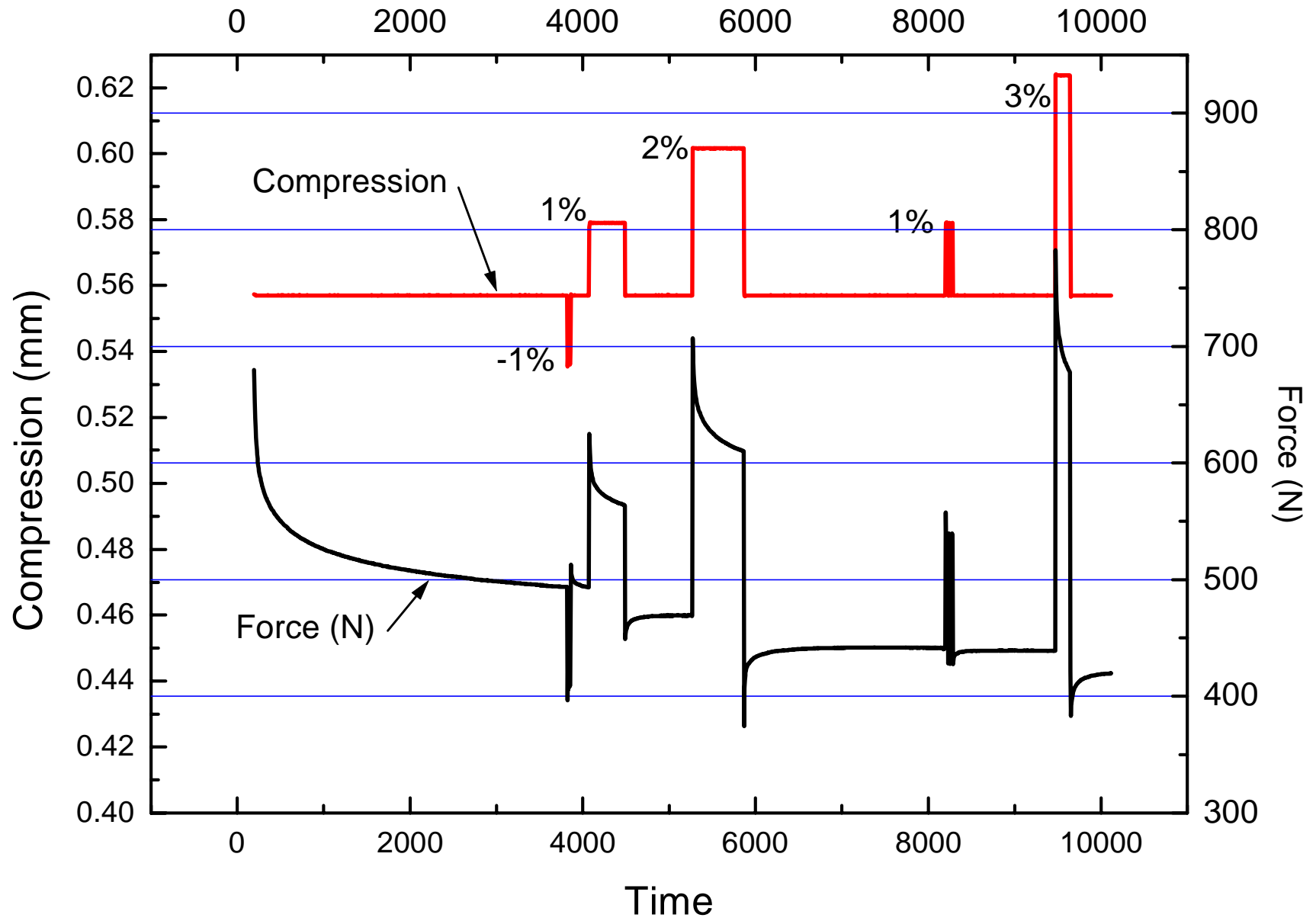




# Thermal Degradation

- Basic Strain States
- Long Term Relaxation
- Cold Performance

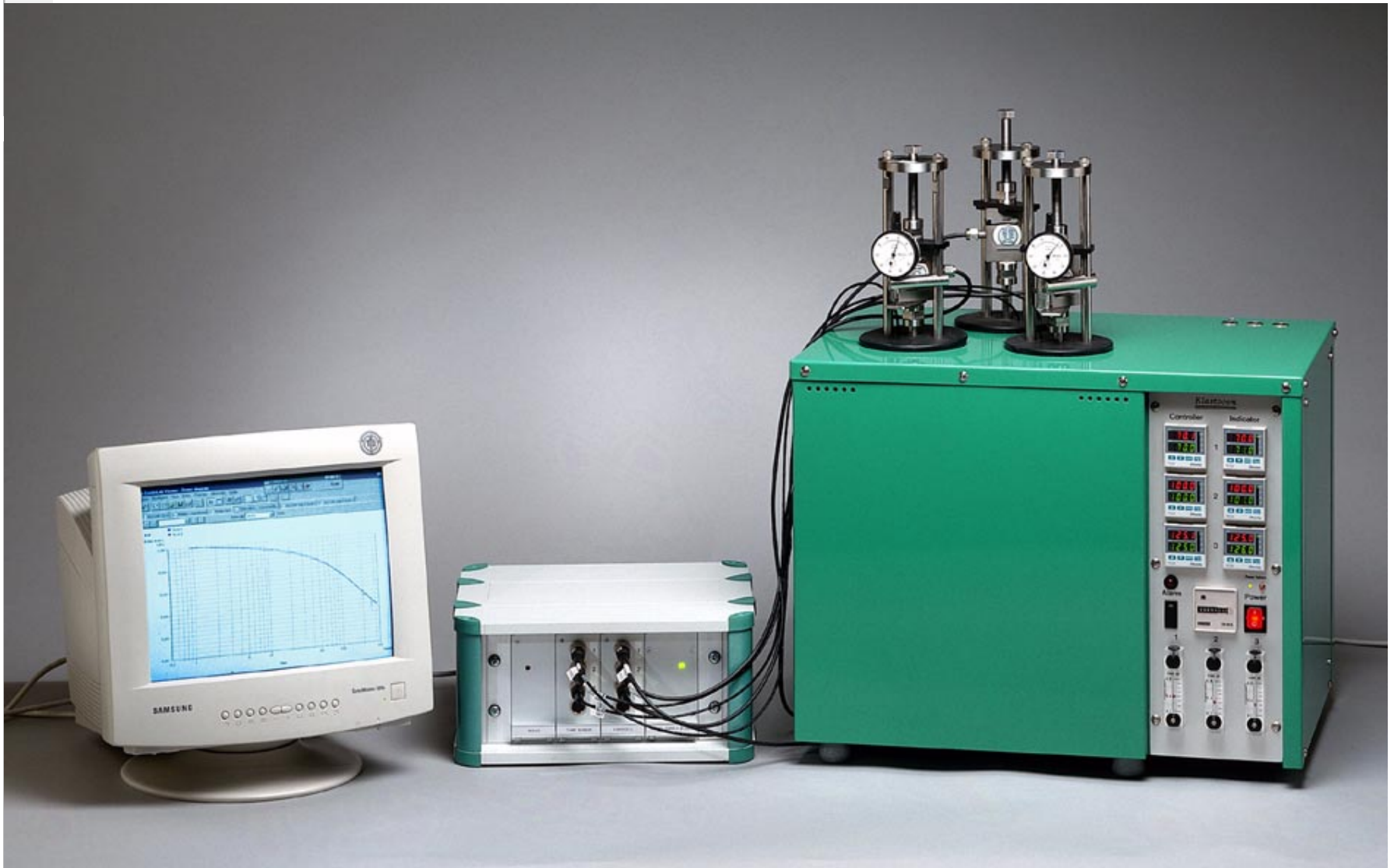






# Manual Fixture Challenges

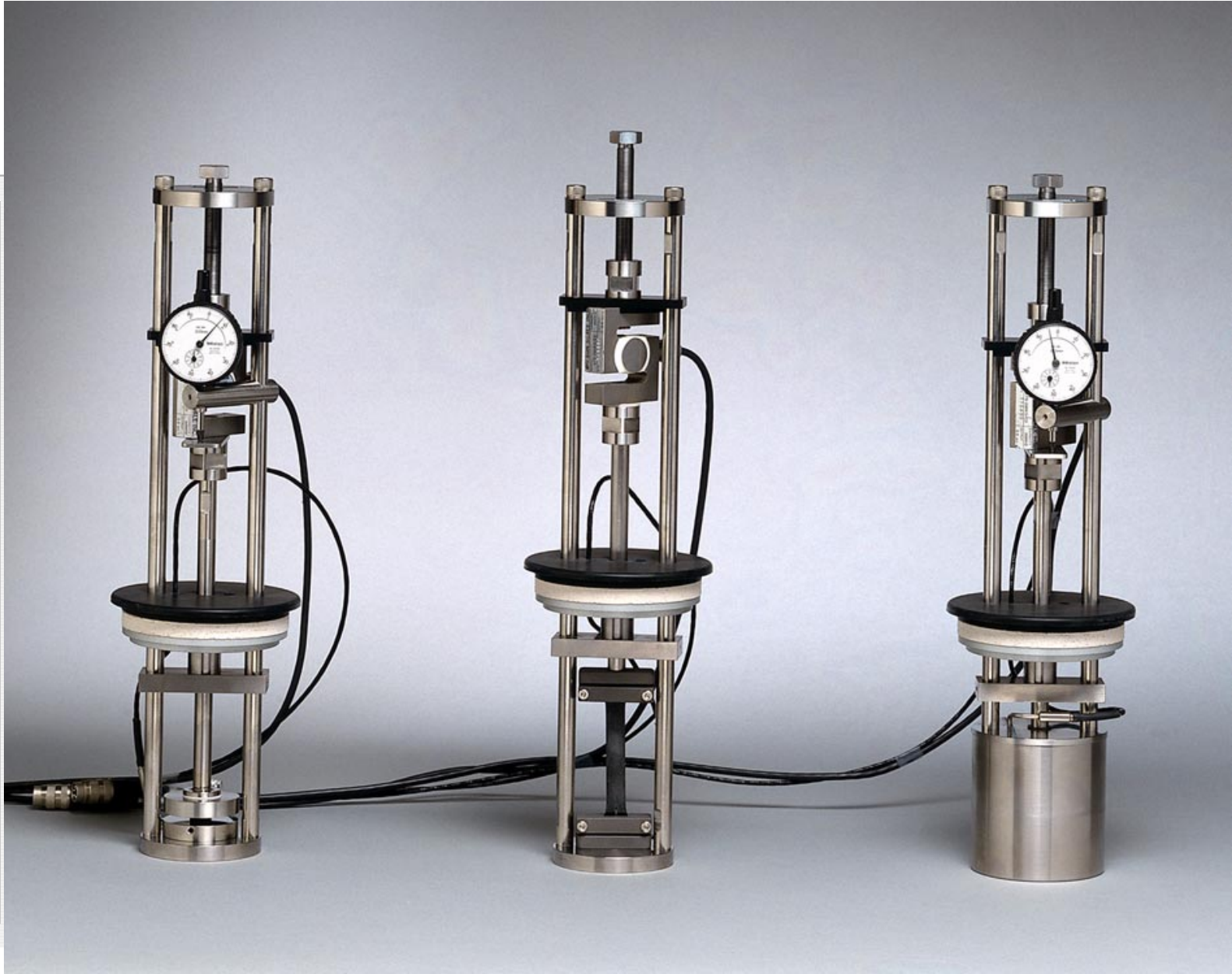
- Specimen Overload during Measurement
- Variable Loading during Measurement
- Hot-Cold-Hot Thermal and Experimental Irregularities
- Fixture Shifting During Measurement

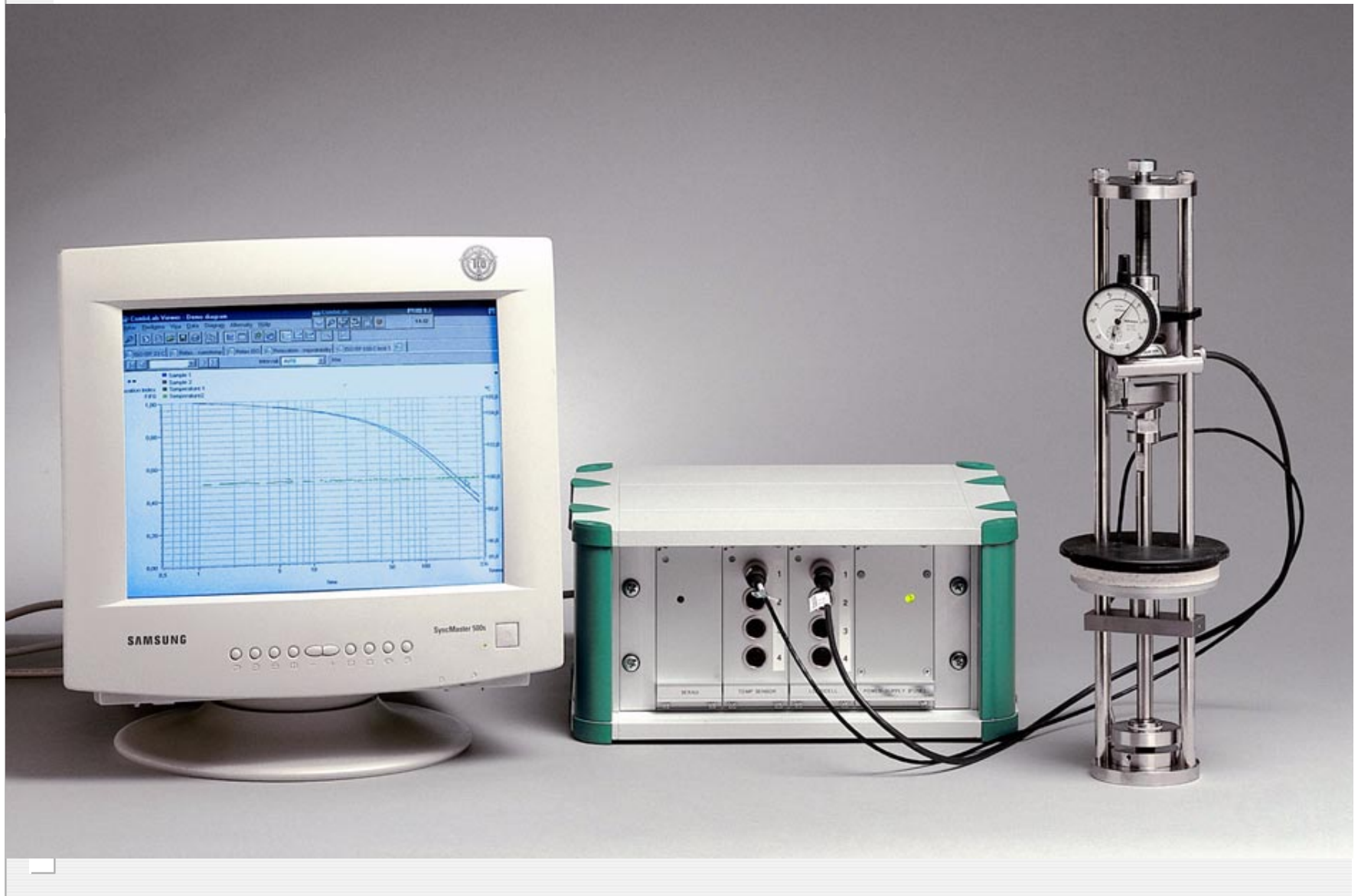


# Long Term Relaxation

- Constant Undisturbed Strain
- Constant Temperature
- Controlled Air Changes
- Controlled Facility









# So Far with the Elastocon System

- Total Working System
- 1 Temperature
- Stable
- Many Fluids
- No Cold Capability
- No Coolant Capability
- High Initial Price

# Cold Performance after Heat

