



# Thor-FLx Version 1.0

Model Number T2LXM000

## Applications

Thor-FLx Advanced Lower Leg Version 1.0 is part of the NHTSA advanced dummy effort. It exhibits improved biofidelic response and is designed to fit either the Thor Female or the HIII 5th Percentile Female dummies.

### **Design features of the Thor-FLx**

- Humanlike ankle motion in dorsiflexion/plantar flexion and inversion/eversion directions.
- Achilles tendon representation
- Humanlike foot performance in dynamic loading
- Compliant axial loading in tibia shaft
- Standard Hybrid III 5th Ball Bearing Knee Sliders

### **Performance Requirements**

The Thor-FLx performance is examined according to two sets of criterion:

- Mandatory certification requirements
- Design reference guidelines

### Mandatory Requirements

Quasi-Static tests for inversion/eversion. Moments and angle are measured.

- At 8 Nm angle 19.2 - 23.4 degrees
- At 17 Nm angle 28.5 - 34.9 degrees

Dynamic impact to ball of foot. Ankle resistive moment and tibia compressive force are measured

- Force 2294 - 2804 N
- Moment 39.6 - 48.4 Nm

Dynamic impact to heel of foot. Tibia compressive force are measured

- Force 1987 - 2429 N

### Design Reference Guidelines

In addition to the mandatory certification tests, design reference guidelines are established

- Quasi-Static in dorsiflexion with and without achilles tendon and plantar flexion. Moment and angle are measured.
- Dynamic impact test to ball of foot. Moment and angle are measured.

### Instrumentation

The Thor-FLx uses Denton Upper and Lower Tibia load cells and three single-axis rotary potentiometers in the ankle. A tri-axial accelerometer can be mounted in the foot and two accelerometers can be mounted on the leg tube. Accelerometers are not included.

- Model 4825 4-Channel Upper Tibia Load Cell
- Model 4826 5-Channel Lower Tibia Load Cell
- Model 5145J 1-Channel Achilles Load Cell

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