



# Thor-Lx Version 3.2

Model Number T1LXM000

## Applications

Thor-Lx Advanced Lower Leg Version 3.2 is part of the NHTSA advanced dummy effort. It exhibits improved biofidelic response and is designed to fit either the Thor or the HIII 50th dummies.

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

- Humanlike ankle motion in dorsi-flexion/plantar flexion and inversion/eversion directions.
- Achilles tendon representation
- Humanlike foot performance in dynamic loading
- Compliant axial loading in tibia shaft
- Standard Hybrid III 50th Ball Bearing Knee Slider

### **Performance Requirements**

The Thor-Lx 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 6 Nm angle 17.5 - 21.3 degrees
- At 23 Nm angle 29.3 - 35.9 degrees

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

- Force 3058 - 3738 N
- Moment 76.2 - 93.2 Nm

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

- Force 2694 - 3292 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 and heel. Moment and angle are measured.

## Instrumentation

The Thor-Lx uses the Denton HIII 50th Upper and Lower Tibia load cells and 3-axis rotary potentiometer in the ankle. A tri-axial accelerometer can be mounted in the foot. Two accelerometers can be mounted on the leg tube. Accelerometers are not included.

- Model 4353J 4-Channel Upper Tibia Load Cell
- Model 4509J 5-Channel Upper Tibia Load Cell
- Model 4929J 5-Channel Lower Tibia Load Cell
- Model 5145J 1-Channel Achilles Load Cell

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