

# THOR-50M NHTSA Qualification Procedures

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Humanetics is now testing THOR-50M ATDs to the draft Qualification Procedures recently released by the National Highway Traffic Safety Administration (NHTSA).

## Original NHTSA Procedures

Since the first release of the THOR-50M Anthropomorphic Test Device (ATD), Humanetics has been testing and collecting data to assist with generating certification corridor recommendations from a large population. Humanetics controlled THOR-50M ATD production using original NHTSA supplied procedures to reduce population variability.

## New NHTSA Qualification Procedures

In October of 2015, the NHTSA released a draft of the THOR-50M Qualification Procedures Manual. The intent of this manual is to begin the process of defining the performance characteristics of a THOR-50M built to meet the 2014-09-29 drawing package. These qualification tests provide a suggested baseline for component performance. The new specifications in this NHTSA manual are a proposed target of test performance that were developed based on a small sample of THOR-50Ms built to the 2014-09-29 drawing package.

Since the time the NHTSA provided the original test procedures in 2012, more data on a larger population has been acquired. The new Qualification procedures were introduced to better represent the knowledge gained over these last few years. However, the new procedures have different output targets which lack historical data. Although several of the NHTSA Qualification tests are reasonably identical to the old NHTSA procedures, other tests are significantly different. For these tests,

Humanetics is unable to use historical data for correlation studies.

As a new baseline, Humanetics studied 5 dummies tested to both the old NHTSA procedures and the new Qualification tests to gain a reasonable correlation. Humanetics has also tested a THOR-50M in a round robin study for the NHTSA and has provided the data to the agency for further review. It is Humanetics' intent to continue to collect data on the next 30 new production ATDs tested to the new NHTSA procedures. With this new data, Humanetics can help develop relevant corridors with the NHTSA for THOR-50M qualifications based upon a larger population of ATDs that have similar responses.

## New Test Data Sheets

Beginning in July, Humanetics will test new THOR-50M ATDs to the draft NHTSA Qualification Procedures and supply the data with each dummy. The previous NHTSA certification testing will no longer be provided. Since there are no regulated or definitive certification corridors, the test data will not display any performance criteria.

## NHTSA Qualification Test Matrix

Component Tests		Full Body Tests
Neck Torsion L & R	Ankle Inversion L & R	Face
Neck Flexion	Ankle Eversion L & R	Head
Neck Extension	Ball of Foot L & R	Upper Thorax
Neck Lateral L & R	Heel L & R	Lower Thorax L & R
Knee L & R		Abdomen
		Upper Leg L & R