Helmet Stiffness Tester

Overview

Biokinetics’ Helmet Stiffness Tester (HST) evaluates the rigidity and shape retention of a helmet along its length, width and height. The measurements provide valuable insight into the durability, resiliency and impact distributive effectiveness of a helmet when subjected to normal loading conditions.

Operation

The stiffness of a helmet is determined by compressing the helmet along the specified loading direction between two parallel plates. The upper loading plate is controlled dynamically with integrated software and an electronically controlled motor. The lower support plate consists of a rigid steel platform supported by four load cells to measure the applied force. The HST custom software can compress the helmet cyclically between preset loads, monitor the amount of helmet compression and dynamically record the test measurements.

The test technician simply places a helmet in the HST in the desired loading direction and using the software program, slowly lowers the upper loading plate until a specific initial pre-load has been applied. From this point, the software cycles from the pre-load to the final test load and then back to the pre-load. This loading cycle can be repeated to any number of desired cycles or until the helmet capacity is exceeded.

The software allows for complete control of the pre-load, final load, number of cycles and the loading rate.
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Specifications

FEATURES:
- Computer controlled loading plates with feedback.
- Can accommodate helmets with following dimensions:
  - Height = 0.4 m (16 inches)
  - Width = 0.35 m (14 inches)
  - Depth = 0.4 m (16 inches)
- Custom enclosure on wheels for mobility.

PHYSICAL:
- Mass = 180 kg (400 lbs)
- Height = 1.6 m (63 inches)
- Width = 0.7 m (27.5 inches)
- Depth = 0.6 m (24 inches)

COMPONENTS:
- Desktop computer with colour printer.
- Data acquisition system, software program, motion controller and all cables.
- 18” digital vernier caliper.

CUSTOM SOFTWARE:
- Graphical user interface and intuitive layout
- Automated data collection, data analysis and reporting
- Allows testing of multiple helmets
- Integrates with Biokinetics’ helmet impact/retention test system and mass properties instrument
- User’s manual

On-site installation and training is available.
Specifications are subject to change.

PRICE and DELIVERY:
Please contact Biokinetics