

# EN17950 HEADFORM

## FOR HELMET TESTING



The development of EN17950 Headforms introduces an upgrade to the existing EN960 models in European helmet testing standards, incorporating innovative features to assess the risk of brain injuries more accurately. This advancement enables helmet manufacturers to design products that are more effective in minimizing the likelihood of severe brain injuries during high-impact sports activities, enhancing safety for athletes and recreational users.

### Background

Working Group 11 of CEN/TC158, responsible for crafting new testing methods for bike, ski, and equestrian helmets, together with Humanetics have developed the EN17950 Headforms. These headforms are a significant enhancement to European helmet testing regulations, replacing the older EN960 models. Innovatively designed to accurately measure the risk of brain injuries, they support the creation of safer helmets not just for sports but also for construction, mountaineering, and other activities, broadening their application across various sectors to enhance safety and protection.

### Design

The outer shape of this new headforms is based on scans of over 4000 individuals and is characterized by the adapted mass moments which are meeting the inertia requirements. In addition the headforms possess realistic friction characteristics similar to a human head against a helmet's inner liner. This is especially of importance since the coefficient of friction has shown to have an effect on the head rotations and brain injury levels. In addition the EN17950 Headforms by Humanetics are meeting shape, mass and center of gravity defined by CEN/TC158 WG11.

### Specifications accord. to EN17950

- » Geometry
- » Mass
- » Center of gravity
- » Mass moment of inertia
- » Outer surface friction

### Instrumentation

Sensor	6DX G2
Description	Head 6DOF
Axis	AX AY AZ VX VY VZ
Data Acquisition System	DAQ-D1

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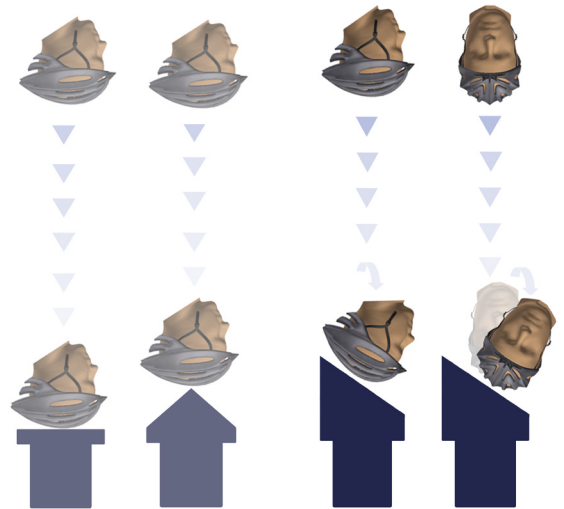
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Due to the improvements in design and extensive round robin testing, an adoption into updated European bike helmet regulation EN 1078 in 2025 is very likely.

The headforms are available in nine different sizes from 47 cm to 63 cm head circumference.

With the extended neck up to the chin, stable chin strap position is assured.

Instrumented with a 6DX G2 sensor (measuring 3 linear accelerations, 3 angular velocities), and an onboard Data Acquisition System suitable for all headform sizes, the impact data can be transmitted through wireless connection to a receiver, where the filtered and resulting data is visible just seconds after the impact.



Overview current test set-up

Additional test set-up

