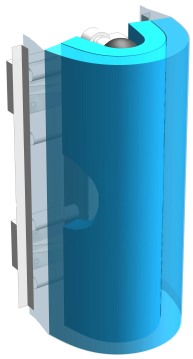
Arup Pedestrian Impactor Models

Pedestrian safety is one of the most rapidly evolving parts of automotive legislation and engineers need the right pedestrian simulation tools for the job.



Upper Legform

European Legforms

Used for pedestrian impact load cases to predict the potential risk of pelvis upper leg injuries.

- Model has been calibrated against the WG 17 dynamic certification test.
- Used in regulations:
  - Euro NCAP (2020 & 2023)
  - GTR No. 9 and ECE R127
- Oasys LS-DYNA Environment provides a comprehensive solution to upper legform impactor analysis setup and post-processing.

Upper Legform

European Legforms

This impactor is used in the EU pedestrian safety regulation (EC) 631/2009 (22nd July 2009) and by Euro NCAP in their Pedestrian Testing Protocol.

- The impactor is rigid and is covered on the impact side by Confor foam and a neopren layer.
- Two load cell transducers measure the individual forces applied at either end of the upper legform impactor front member.
- Three cross section moment outputs are used to measure the bending moments of the front member.

Validation

This legform model has been calibrated using the standard pendulum calibration test detailed in Regulation (EC) 631/2009.

The target speed and mass of the supplied upper legform model is set up in accordance to the Euro NCAP regulation (ref. "Euro-NCAP Pedestrian Testing Protocol v8.4". November 2017).

Validation work has been carried out in both SMP and MPP versions of LS-DYNA R9.2, R7.12 and R11.2.2 to ensure the performance and accuracy.

Specifications

LS-DYNA Release Version	Total Number of Elements	Mass	Regulation Test	Regulation Speed
LS-DYNA R9.3.1 MPP/SP	62447	9.5kg	Euro NCAP & J-NCAP	11.1 m/s