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.

Lower Legform

European Legforms

Developed for pedestrian impact load cases to predict the potential risk to the leg, knee and ligaments.

- Model has been calibrated against the WG17 static and dynamic calibration test, the TRL leaf spring test, and to a multiple bumper impact test.
- Lower legform used in regulations:
  - EuroNCAP (2020)
  - GTR No. 9 and ECE R127
- Oasys LS-DYNA Environment provides a comprehensive solution to lower impactor analysis setup and post-processing.

Lower Legform

European Legforms

The legform impactor conforms to that specified in UNECE/TRANS/WP.29/GRSP/2013/26, Annex 4.

Validation

This legform model has been validated against the WG17 static and dynamic calibration test, the TRL proposed leaf spring test and to a multiple bumper impact test.

The target speed and mass of the supplied lower 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 9.2, 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 971 R7.1.2 SMP/MPP	24933	13.4kg	Euro NCAP	40km/h