Pedestrian Detection Impactor 2 (PDI-2)

- New optimized shape and physical properties
- Higher durability due to new foam characteristics
- Optimized velocity range
- Designed for drive and propulsion system tests
- Best use with Microsys Universal Impact Test System

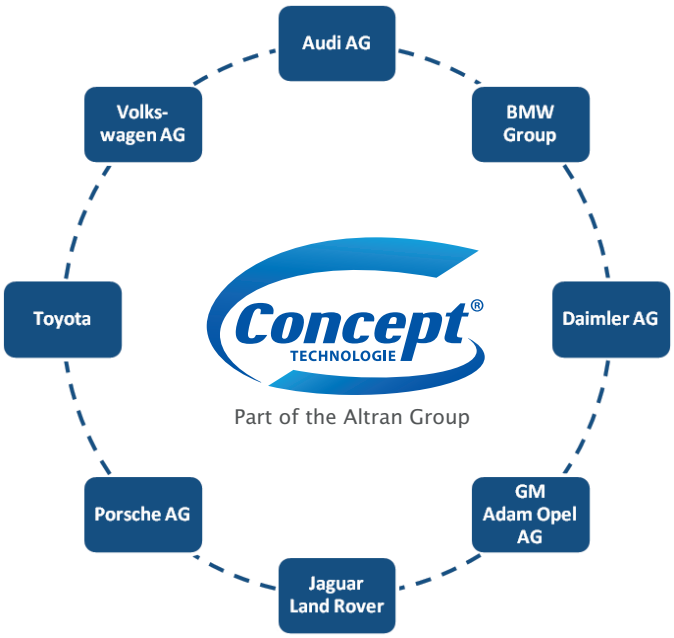
Concept® TECHNOLOGIE

Part of the Altran Group

Pedestrian Detection Impactor (PDI-2)

Impactor Description

The Pedestrian Detection Impactor 2 has been developed in collaboration with the ACEA Group to test contact sensor systems in vehicles with active pedestrian safety mechanisms such as deployable bonnets. The PDI-2 has been developed with the aim to represent the worst case for the sensor triggering ("hardest to detect") for all three vehicle categories (Sportscar, Sedan and SUV) that are assessed regarding VRU safety at a relative impact speed of 20 km/h - 40 km/h.



The physical properties of the PDI-2 have been designed to reproduce the intrusion-, force-, and energy-vs.-time characteristics on vehicle frontend structures for the worst case ("hardest-to-detect") situation of the impact with a pedestrian-dummy (Madymo) or FE-human-model (THUMS-D) at relative impact speeds from 20 km/h to 40 km/h.

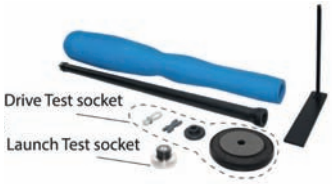
By simultaneously taking into account the intrusion, force and energy behavior during the impact, not only in the central loadpath (usually at the height of the bumper cross-beam) but also in the lower and upper frontend region, a stable and realistic contact kinematics could be ensured as well as a high independence on the actual type of sensor system in use.

Impactor Components

The design of the PDI-2 allows an easy component assembly, user-friendly handling during the tests and a high durability to withstand repeated tests with impact speeds of up to 55 km/h, either by driving the vehicle against the free-standing impactor (full-scale-tests) or by using a propulsion system. The PDI-2 is a simple, robust impactor with minimum maintenance effort.

The PDI-2 consists of following components:

- Outer foam part
- Carbon tube with steel/lead core
- 2 different integrated sockets
- Integrated fixation for safety cord



New Characteristics/ Benefits at a Glance

- New optimized shape and physical properties
- New foam characteristics - higher durability
- Optimized velocity range
- Simple, robust and maintenance free impactor
- Impactor with low mass
- Humidity resistant foam material
- Temperature resistant foam material from -30 °C up to +70 °C (+100 °C)
- Designed for 20 km/h - 40 km/h and robustness for up to 55 km/h
- FE- Model for LS- Dyna, Pam Crash, Abaqus and Radioss (after V5)
- Designed for drive and propulsion system tests

Technical Details

Central tube:

- Carbon fibre composite with lead-filled steel core

Dimensions:

Height (incl. socket):	1 000 mm
Height of integrated socket:	25 mm
Outer diameter:	76 mm - 148 mm

Characteristic properties (for both test sockets):

Overall mass:	~6.75 kg
Center of gravity (above ground):	654 mm

As a full-range provider of engineering, simulation, testing and tools for safety development we speak exactly your language. This understanding can be felt in all our products and services. The team of Concept Tech and Microsys, part of the Altran group, provides you with expertise and support worldwide.
Find more information about our products and services at concept-tech.com and altran.com.

© 2016 Altran Concept Tech GmbH. All rights reserved. 08/16

Concept TECHNOLOGIE
Part of the Altran Group

MICROSYS
Part of the Altran Group