

LINEAR IMPACTOR SYSTEM

complexity made simple.

HuDe Datenmesstechnik GmbH

Since 1981 HuDe Datenmesstechnik stands for highest quality and best service. Either in coke oven machinery or in test and measurement technology HuDe is firmly established around the world. The products are developed and produced with special

attention to best performance, newest technology, adherence of schedules and customer satisfaction. Our project teams and partners are using leading technology in design, construction, manufacturing and support to provide the best client satisfaction.

Our Values

Our business philosophy is providing high-tech products made by outstanding people. To secure this target we permanently check and improve our processes and skills. Continuous training of our creative engineers is one of the key points of success.



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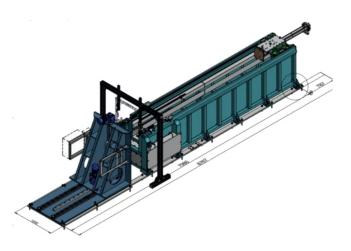
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Linear Impactor System

The Linear Impactor designed by HuDe is perfectly suitable for the integration in small test facilities. Due to the flexible design, the system can be expanded by further modules at any time. You can cover test specification with different test variations like the common LIP plate impact, the guided motion modules such as head impact and ejection mitigation as well as the free motion modules like Maxilla / Double FMH and Body Block.

The Modular Launcher

The impact engine is the Linear Impactor Propulsion sled. It represents a modular versatile-in-one system for the test modes Head Impact, Body Block, Linear Impactor, Maxilla and Out-of-Position. Latest addition to the launcher is the brand new Knee Impact mechanics and Double FMH.



Basic System

A servo electric drive guarantees a high precision impact velocity by closed loop operation. Easy to maintain and replacement of impact sleds allows to change the test mode within some minutes.

Data acquisition with 32+ channels and multiple ignition channels for firing airbags are typical integrated to this test bench.



Linear Impactor System



Guided Motion

By easy to exchange modules different guided impact tests are possible.

- Linear Impactor of low and high payloads in a wide range of energy input
- Head Impactor according to ECE R21
- Ejection Mitigation following FMVSS 226



Free Motion

For the tests using free flying objects the following addons are available.

- FMH Free Motion Headform according to FMVSS 201U
- Double Head Impactor for test of head airbags in first and second seatrow
- Body Block test according to ECE R12



System Overview

The proven Linear Impactor Basic System provides the basis for the various test scenarios.

The versatile customer requirements are ensured by the modules.

The priority is a high reproducibility and precision. The impact speed is precisely controlled and adjustable by the sensors.

They provide an important basis for the evaluation and allocation of results.

Customizing

According to customer requirements wide range of impact bodys and sleds is available for use with the Linear Impactor Basic System.

Basic System

- HuDe Ignition, DAQ & control system
- Crash Barrier with sample fixing
- Light Barrier Frame
- Launcher
- Universal Sled for carrying impact modules

Technical Data

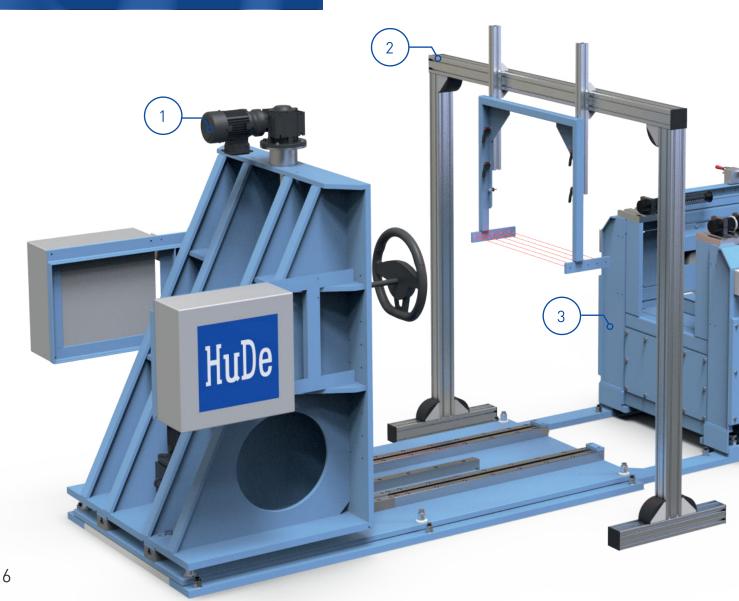
Power Supply: 400 V / 50 Hz Engine Power: approx. 50 kW

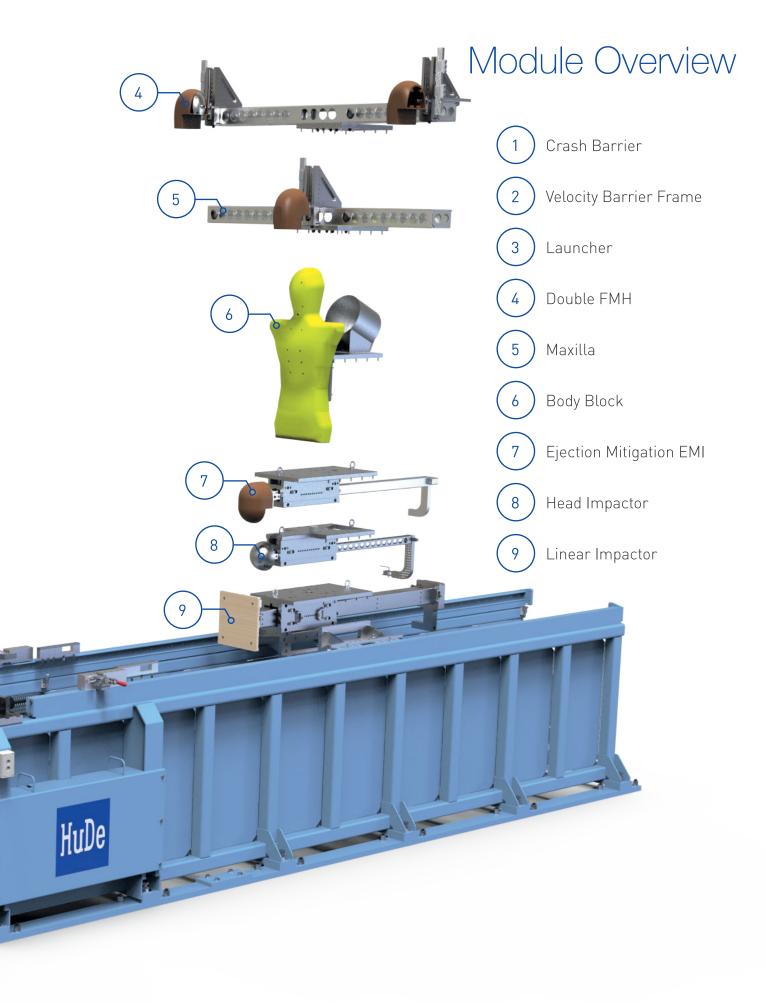
Maximum Speed: approx. 11 m/s (40 km/h)

Maximum Energy: approx. 2,500 J

Dimensions (approx.)

Launcher: 5,000 x 1,000 x 1,200 mm Crash Barrier: 2,500 x 1,500 x 1,800 mm







Technical Specifications

Basic System



Module Launcher

Weight Approx. 1,500 kg
Sensor 1x Deflection Meter

References FMVSS 201U / 202a /

203 / 222 / 226

ECE R12 / R17 / R25

GB 11557

Optional Customized engine

power, typical 50 kW



ModuleCrash BarrierWeightapprox. 2,000 kg

Adjustment X and Z direction

movable by motor drive swivel table for angle

Dimensions 2,300 x 1,200 mm

Features Inverter controlled drive

Optional Displacement sensors

turnable around Z-axis



Module Velocity Barrier Frame

Weight 50 kg

Sensor 2x Light Barrier sensors

with calibrated distance

Dimensions 1,500 x 2,500 mm

Features No sensitivity on high

energy illumination

Optional Mounted on ground or

attached to ceiling



Technical Specifications

Guided Motion

Module Linear Impactor

Weight 33 - 100 kg

Sensor 2x Acceleration sensors

1x Displacement sensor

References FMVSS 203 / 208 / 222

ECE R21 GB 11557

OOP - Out of Position Test

Optional Low weight version from

17 kg is available

Linear Impactor



Module Head Impactor

Weight 6.5 kg

Sensor 2x Acceleration sensors

1x Displacement sensor

References FMVSS 201 / 203

ECE R21 GB 11557

Optional Low weight version from

4.5 kg is available

Head Impactor



Module Ejection Mitigation EMI

Weight 18 kg

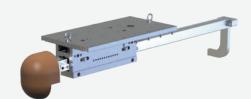
Sensor 1x Displacement sensor

References FMVSS 226

Optional Built in calibration tool

kit

Ejection Mitigation EMI





Technical Specifications

Free Motion

Maxilla



Module Maxilla Weight 4.6 kg

Sensors 1x 3D Acceleration

sensor

References FMVSS 201U / 202a

ECE R17 / R25

Double FMH



Module Weight Sensors Double FMH
4.6 kg per head
2x 3D Acceleration
sensors (each head)

References FMVSS 201U / 202a

ECE R17 / R25

Body Block



Module Body Block

Weight 35 kg

Sensors 2x Acceleration sensors

1x 3D Load Cell

References FMVSS 203

ECE R12 / R95

GB 11557

Optional 1x 3D Acceleration

sensor in head location



Accessories

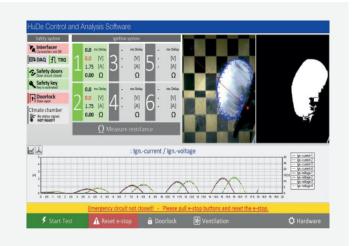
Features

Control and Analysis Software

CFC Filtering and calculation of crash criterias e.g. HIC, BRIC, a3ms, resulting forces, deflection, airbag pressure.

Data export for CAE Simulation input in different file types (ISO-MME, CSV, XLS, DIAdem).

Support of all state of the art high speed cameras and lighting systems.



Optical Displacement Sensor

The high precise optical displacement IES sensor converts the movement of the sled to an analog output voltage for testing and characterization of the distance and force of the guided modules.

The sensors record the movement in both directions and provide additional informations for the analysis.



SafetySystems

Operator safety is the main goal. With doorlocks, E-Stop, motion sensors, CCTV and access restrictions the maximum safety for operators is guaranteed.

Data security for test results of 15 years is enscured by data transfer to central SQL servers or proprietary file systems according to customer specifications.







HuDe Mission Statement

We have realized projects in more than 25 countries and are represented around the world in all major regions of automotive development and manufacturing. Contact us today and convince yourself of our service and extensive project experience. Customer satisfaction and product quality are always our top priority.



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