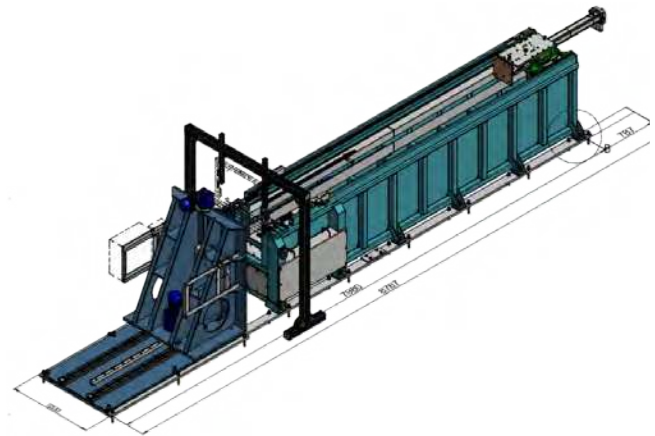


Linear Impactor System

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

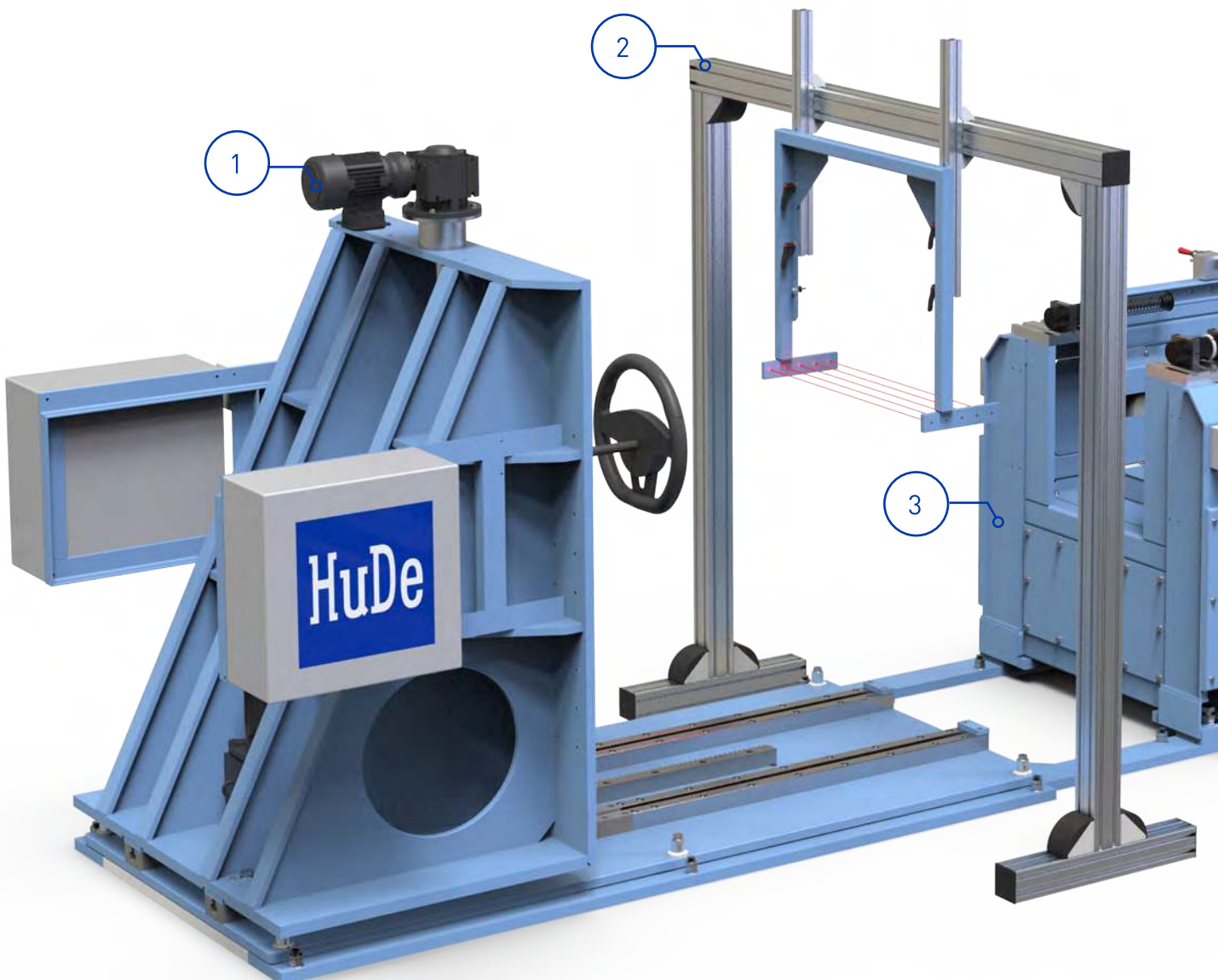
- HuDe Ignition, DAQ & control system
- Crash Barrier with sample fixing
- Light Barrier Frame
- Launcher
- Universal Sled for carrying impact modules

Technical Data

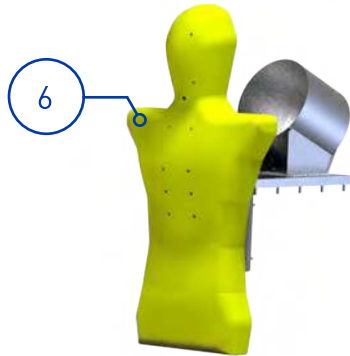
| | |
|-----------------|--------------------------|
| Power Supply: | 400 V / 50 Hz |
| Engine Power: | approx. 50 kW |
| Maximum Speed: | approx. 11 m/s (40 km/h) |
| Maximum Energy: | approx. 2,500 J |

Dimensions (approx.)

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



Module Overview



1 Crash Barrier

2 Velocity Barrier Frame

3 Launcher

4 Double FMH

5 Maxilla

6 Body Block

7 Ejection Mitigation EMI

8 Head Impactor

9 Linear Impactor

Technical Specifications

Basic System

Launcher



| | |
|------------|--|
| 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 |

Crash Barrier



| | |
|------------|---|
| Module | Crash Barrier |
| Weight | approx. 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 |

Velocity Barrier Frame



| | |
|------------|--|
| 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



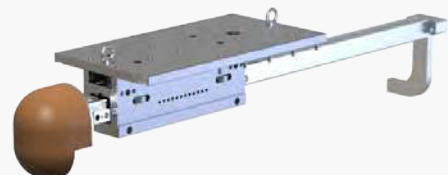
| | |
|------------|---|
| Module | Head Impactor |
| Weight | 6.5 kg |
| Sensor | 2x Acceleration sensors 1x Displacement sensor |
| References | FMVSS 201 / 203 ECE R21 GB 11557 |
| Optional | Low weight version from 4.5 kg is available |

Head Impactor



| | |
|------------|----------------------------------|
| Module | Ejection Mitigation EMI |
| Weight | 18 kg |
| Sensor | 1x Displacement sensor |
| References | FMVSS 226 |
| Optional | Built in calibration tool kit |

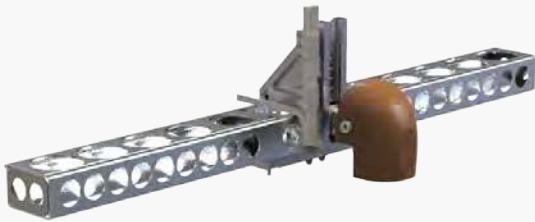
Ejection Mitigation EMI



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 | Double FMH |
| Weight | 4.6 kg per head |
| Sensors | 2x 3D Acceleration sensors (each head) |
| References | FMVSS 201U / 202a ECE R17 / R25 |

Body Block



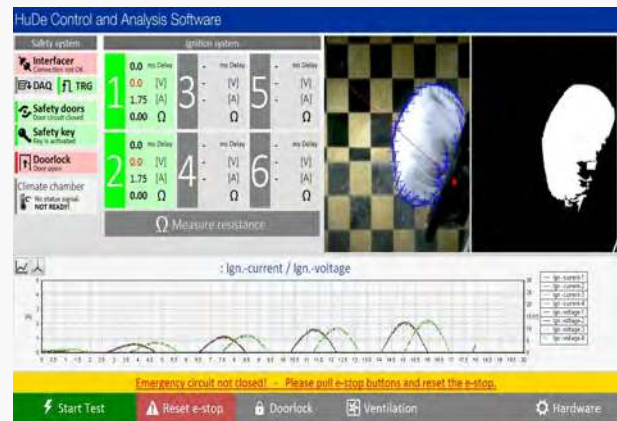
| | |
|------------|--|
| Module | Body Block |
| Weight | 35 kg |
| Sensors | 2x Acceleration sensors 1x 3D Load Cell |
| References | FMVSS 203 ECE R12 / R95 GB 11557 |
| Optional | 1x 3D Acceleration sensor in head location |

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.



Safety Systems

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 ensured by data transfer to central SQL servers or proprietary file systems according to customer specifications.

