

# Ejection Mitigation & Pedestrian Protection Headform Test System

- Best in class accuracy by high speed closed loop control
- Direct adjustment of speeds without any pretest required
- High availability and low maintenance costs through hydraulics-free design
- Fast turnaround time between different launchers & tests (<30 min)
- Low operating cost (\$ 1/launch)

# Ejection Mitigation & Pedestrian Protection Headform Test System

## System Description

This Microsys Test System is customized for FMVSS 226 and Pedestrian Protection Headform testing and can be refitted for additional load cases.

## Basic System Specification

Work and control medium:	Technical Nitrogen N2
Supply pressure N2:	up to 16 bar
Control system:	B&R
Required power supply:	3-phase AC 2.5 kW
Standard weight:	approx. 5 000 kg

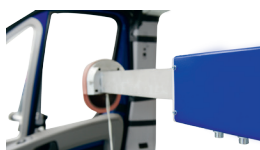
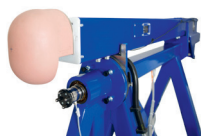
## System Performance: Productivity

The following number of tests, based on experiences, can be performed by a team of 1 system operator and 1 supporter within 8 hours:

- Headform tests: 8 - 10 tests/day
- Ejection mitigation: 8 - 10 tests/day

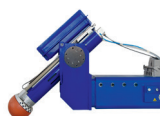
(These numbers take into account the required time for changing test parts between two tests and the time needed for Light and Camera position changes - technically 1 test per minute is feasible.)

## System Performance: Ejection Mitigation



- Bearing: High speed linear bearing
- Friction force at 100 kg: < 100 N
- Static deflection at 100 kg: < 10 mm
- Mass of moving parts: 18 kg ± 0.1 kg
- Speed at impact: 14 to 26 km/h
- Accuracy of speed at impact: ± 0.2 km/h (legal req. ± 0.5 km/h)
- Accuracy of impact location: ± 3 mm
- Rotation of EMI head: quick release fastener with 5° steps operates without removing the head

## System Performance: Pedestrian Headform



- Accuracy of impactor location: ± 5 mm
- Accuracy of speed at the impact: < 1% (on customer request down to) ± 0.2 km/h

## Load Cases & Launcher Type

### Ejection Mitigation:

- FMVSS 226
- Similar customer specific requirements



Launcher M

### Pedestrian Protection Headform:

- 2009/78/EC (ECE-R127)
- EuroNCAP – Pedestrian Protection Protocol
- GTR 9 – Pedestrian Protection
- TRIAS 63 – Japanese Pedestrian Protection
- GB 24550
- All similar headform tests



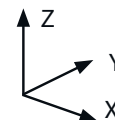
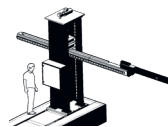
Launcher M

\* according to the latest revision status

### Calibration devices for Ejection Mitigation:



## Travel of Power System



- X-direction: 1 600 mm/accuracy < 0.1 mm
- Y-direction: 3 000 mm/accuracy < 0.1 mm
- Z-direction: 1 600 mm/accuracy < 0.1 mm

## Control System & Data Analysis

Like all Microsys products the ASC launcher is controlled by the flexible and user friendly software „Unisoft“, which reduces the time and cost for training of technical personnel. Furthermore different configurations on customer request are possible. The control system consists of standardized components that are available all around the world and enables a fast and easy support workflow.

If used with the Microsys Universal Impactor Test System, all adjustments needed for the positioning of the system prior to the firing can be completed by means of a wireless remote control. The system adjustment is possible via two joy-sticks, mounted on the remote control itself.

## Certified Quality

The test system is certified by TÜV and will be delivered with the CE mark. The Ejection Mitigation & Pedestrian Protection Headform Test System is used by many customers for conformity of production testing, for vehicle engineering, self-certification and type approval.