



H-Pendulum (ECE-R21 & FMVSS 201)

- High stiffness pendulum structure (CAE optimized) for low vibration
- High availability and low maintenance costs through hydraulics-free design
- Excellent accuracy by rotating nitrogen piston
- Low operating cost (\$ 1/Launch)

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System Description

The Microsys pendulum system is designed to support the development of instrument panels or similar energy absorbing elements like seats, headliners and center-consoles according to the regulations ECE-R21 and FMVSS 201. The acceleration of the ball head is measured with two acceleration sensors in the impactor.

The system is propelled by a rotating piston powered by nitrogen. The advantage of using a rotating piston is a constant acceleration and therefore a higher speed accuracy than with a linear driven pendulum.

The high stiffness of the impactor is resulting in very low vibration during the test allows for excellent correlation to CAE results.

Basic System Specification

- Work and control medium: Bottled Nitrogen N2
- Supply pressure N2: Up to 16 bar
- Control system: B&R or Siemens
- Required power supply: 3-phase AC 2.5 kW
- Standard weight: Approx. 1 000 kg

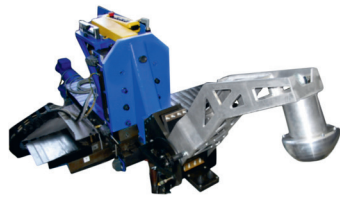
System Performance

- Weight of impactor: 6.8 kg
- Diameter of impactor: 165 mm
- Speed at impact: 18 - 25 km/h
- Accuracy of speed at impact: ± 0.2 km/h
- Accuracy of impact location: ± 5 mm

Load Cases

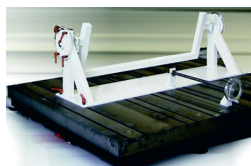
- ECE-R21, -R80, -R25
- ECE-R17
- TRIAS 20
- 74/60/EC
- GB 11552
- FMVSS 201
- Similar Test

* according to the latest revision status

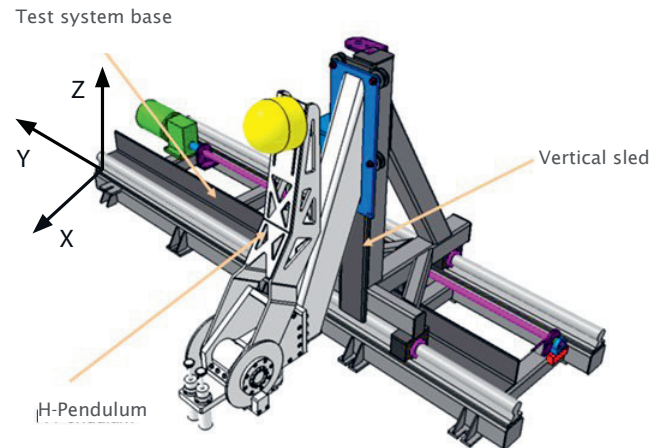


Accessories

An adjustable instrument panel test stand is used for mounting the instrument panel or other test specimen. It is adjustable longitudinally (e.g. on a T-slot base plate) as well as rotating the IP along around the Y-axis.



Movement of 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 CEmark. The Microsys pendulum test system is used by many OEM's for conformity of production testing, for vehicle engineering, self-certification and type approval.