

Bumper Pendulum

**The best solution for
bumper impact testing**



- ◆ Fully automated pendulum height adjustment
- ◆ Fully automated speed calculation and winding to the start position
- ◆ Excellent speed accuracy, no pre-test required for speed adjustment
- ◆ No hydraulics means low maintenance cost & minimum downtime
- ◆ Robust design for extended life and high reliability
- ◆ Fully controlled by Microsys SureFire Software

Bumper Pendulum

System Description:

The Bumper Pendulum Test System is used for testing of the energy absorbing components of the vehicle front structure and rear structure. Further on user defined tests as well as detailed analyses of crash characteristics of full vehicle or mounting parts up to a velocity of 16 km/h can be performed. The pendulum weight can be adapted to the test requirements from 700kg to 3500kg in steps of 1 kg.

Operation:

1. User input of requested impact speed.
2. Test software calculates the necessary start height and gives this information to the automatic winch.
3. Winch pulls the pendulum fully automated to the calculated starting point.
4. On a user start input the pendulum is automatically released.

Basic System Specifications:

- ⇒ Control System: B&R or Siemens
- ⇒ Required Power Supply: 3-phase AC 2.0 kW
- ⇒ Total Weight: Approx. 5500 kg

Load Cases:

- ⇒ Part 581
- ⇒ ECE-R42
- ⇒ CMVSS 215
- ⇒ GB 17354-1998
- ⇒ AIS-006/2005
- ⇒ KMVSS Art.93
- ⇒ GOS 41/2007



System Performance:

- ⇒ Weight of Impactor 700kg - 3500kg
- ⇒ Impact height: 350mm - 700 mm
- ⇒ Speed at Impact 1-16km/h
- ⇒ Accuracy of Speed at Impact (<5km/h) ± 0.05 km/h
- ⇒ Accuracy of Speed at Impact (>5km/h) ± 0.1 km/h

Certified Quality:

The test system is certified by TÜV and will be delivered with the CE mark. The pendulum test system is used by many OEM's for conformity of production testing, for vehicle engineering, self-certification and type approval.

Since 2012 Concept & Microsys combined forces inside the "Concept Tech Group" to supply the automotive industry from its global sales & support network. Our family of safety testing products & services includes airbag deployment, cold gas inflation, impactor launch, low speed crash devices and much more.....

Movement of Equipment:



- ⇒ Y-direction fixed
- ⇒ Z-direction 350mm - 700 mm / accuracy < 0.5 mm

Sensors & Measurement:

The Pendulum system is equipped with a calibrated speed trap to measure the impact speed.

On customer request an additional acceleration sensor in the line of the COG of the pendulum can be added to measure the acceleration during the crash event.

For test according to Part 581 and CMVSS 215 the pendulum is equipped with load cells behind the impact area to measure the impact force distribution. This information can also be useful to calibrate simulation models and to optimize the energy absorption behaviour of the object and of load paths.

Control System & Data Analysis:

Like all Microsys products, the Pendulum Test System is controlled by the Microsys SureFire software. SureFire provides a common test platform for impactor and airbag testing, which reduces the time and cost for training of technical personal. Microsys PowerPlay software is implemented into SureFire as a powerful data analysis and data processing tool. It can be used for post processing and automated reporting. DIADEM can be optionally included.

SureFire can also be upgraded to manage high speed cameras and lighting, as well to provide data acquisition and facility safety management.



www.micro-sys.com
sales@micro-sys.com
Tel: +1 (905) 678-3288



www.concept-tech.com
office@concept-tech.com
Tel: +43 (3124) 203-0