

TECCON

heart of engineering

BUMPER PENDULUM

- Easy and safe access without tools by submarine style door
- Fully automated pendulum height adjustment, speed calculation and winding to the start position
- Excellent speed accuracy, no pre-test for speed adjustment required
- No hydraulics mean low maintenance cost & minimum downtime
- Fully controlled by Microsys SureFire Software



Description

The Bumper Pendulum Test System is used for testing the energy absorbing components of the vehicle front 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 700 kg to 3500 kg 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

Specifications

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

System Performance

- Weight of impactor: 700 kg - 3500 kg
- Impact height: 370 mm - 700 mm
- Speed at impact: 1 - 16 km/h
- Accuracy of speed at impact (< 5 km/h): ± 0.05 km/h
- Accuracy of speed at impact (> 5 km/h): ± 0.01 km/h

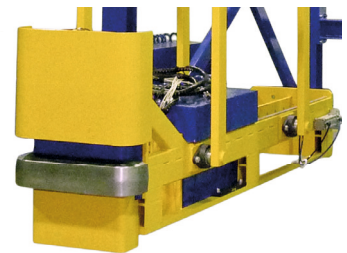
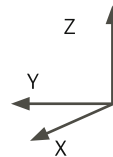
Load Cases

- Part 581
- ECE-R42
- (CMVSS 215)
- GB 17354
- AIS-006
- KMVSS Art.93
- GOS 41

Movement of System



[Website](#)



- Y-direction: fixed
- Z-direction: 370 mm - 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 tests 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.

Certified Quality

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

