Drop Tower Test System

The Microsys Drop Tower Test System is a cost-effective and highly efficient test system suitable for a wide range of tests:

- Comparison tests with low-cost individual components instead of expensive full vehicle crashes (doors and door panels, bonnets, etc.)
- Tests for supporting virtual development (simulation)
- Material validation
Drop Tower Test System

System Description

The Drop Tower Test System only requires a compressed air connection (10 bar) and power supply (400 V) for operation. Customers can furthermore define the impactor’s shape and size, as well as its weight and material, within the scope of the technical and strength-related options available. The impactor’s weight can also be increased up to a maximum of 200 kg (depending on the size and shape of the sled) in 0.5 kg increments using extra weights, which can be easily and rapidly fitted to the sled.

The sled lifting system is controlled through a user interface (Microsys Unisoft) on the control PC and comprises a hoisting winch that automatically lifts the sled when activated. The system can be operated by simply entering two parameters, such as force and drop weight, velocity and force, or drop weight and velocity, after which it will automatically calculate the drop height using a special calculation matrix.

Basic System Specifications

The Drop Tower Test System’s dimensions and specifications can also be easily and quickly adapted to different customer specifications:

- Max. Height: 6.66 m
- Max. Width: 1.05 m
- Max. Drop height: 4.00 m
- Test velocity: up to 8 m/s
- Max. Mass: up to 200 kg
- Accuracy: +/- 0.055 m/s
- Repeatability: +/- 0.025 m/s

Safety Features

The supplied safety fence with its automatic lock and ‘parking position’ for the drop weight/impactor furthermore ensures a very high level of safety. The parking position also allows operators to safely work in the impact area without restricting their working range.

Rebound System

The specially designed rebound system, which is triggered by the same laser sensor that is responsible for measuring deformation (up to 400 mm), prevents the drop weight / impactor from impacting a second time and consequently ensures that all tests yield precise results that can be used both for virtual simulations and damage analyses.

Measurement System & Additional Equipment

In addition to the standard equipment supplied, we can provide special measuring technology (including all kinds of sensors, data recording and automatic evaluation and report generation), a high-speed camera system and matching lighting equipment.

Customers can furthermore define the impact area or impact structure (e.g. dummy parts, holding frames, clamping elements, etc.), and our development team will also be happy to advise you on the various mounting options and sensors that can be used in this respect.