POLITECNICO DI MILANO



La.S.T.

La.S.T. is the transport safety lab of the Department of Aerospace Science and Technology

Laboratory Manager: Ing. Andrea Milanese

DIPARTIMENTO DI SCIENZE E TECNOLOGIE AEROSPAZIALI

Description

The La.S.T. lab is divided in two main branches, passive and active safety. Research on passive safety began in the Department of Aerospace Science and Technology in the late '60s leading to the constitution of the first academic crash laboratory in Italy. Our mission is to improve transportation safety through numerical simulations and experimental activities.

Accredited Staff

Two technicians. Responsible of the lab.

Certifications

UNI ISO17025, Accredia, FIA, EASA, UIM, ITALCERT, Dekra.

References

Agusta Westland, Mecaer Aviation Group, Alenia Aermacchi, ArcelorMittal, Snoline, Selex ES, Ansaldo STS, Audi Sport, OAK Racing, Oreca, HP Composites, Mygale, Tatuus, SPM, Ycom, Same Deutz-Fahr, Piaggio, Dekra, Brembo, Dallara.

Laboratory Manager

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Website

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Laboratory Address

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Instrumentation & Facilities

- Horizontal sled, energy absorbing tests or deceleration tests.
- Vertical sled, material characterization and components testing.
- Vertical sled, systems and subsystems testing (e.g. landing gear).
- Drop tower, energy absorbing tests on hard soil and on water.
- Bird-Strike cannon, investigation of bird impact phenomena.
- Ballistic cannon, investigation of hailstone, bullets and debris impact phenomena.
- Static load testing, tests on components and subsystems under tension and compression loads.
- Mechanical test rig, static tests on structures (e.g. automotive frames, seats).
- DPI testing rig, tests and certification of DPI PPE.
- Virtual testing, development of FE models and numerical simulations.

Activities

Horizontal sled

- Tests on restraint systems.
- Crash tests on absorbing structures (e.g. racing cars nose cone).
- Crash tests with cars, motorbikes and railway absorbing structures.
- Tests on systems and subsystems under dynamic loads (e.g. seats).
- Tests on road safety barriers.

High energy vertical sled

- Development and certification tests on landing gears.
- Endurance tests on systems and subsystems.

Drop tower

Drop tests on water and rigid soil of different systems and subsystems:

- Fuel tanks.
- Helicopter subfloors.
- Absorbing structures.
- Rockfall protection.

Static load testing

- Compression and tensile tests on specimens of different materials.
- Tensile tests on bolts.
- Bending tests on different components or subsystems (e.g. road safety barriers).

Bird-Strike cannon

Impact of bird surrogates or large objects (e.g. stones) on different systems and subsystems:

- Nose cone.
- Spinner cone.
- Canopy.
- Leading edge.
- Railway vehicle subsystems.
- Other components or subsystems.

Ballistic cannon

Impact of hailstone, bullets and debris on different objects:

- Panels.
- Helmets.
- Aeronautical components.
- Satellite shields debris.

Mechanical test rig

- Static tests on racing car frames and roll-cages.
- Static tests on aeronautical seats.
- Static test on different systems and subsystems.

DPI testing rig

- Tests and certification of climbing harnesses.
- Tests on other Personal Protective Equipment (PPE - DPI).

Virtual testing

Numerical simulations are used for different purposes:

- To predict results of experimental tests.
- To verify the behavior of different technical solutions.
- To extend results of experiments to conditions difficult to achieve in normal experimental tests.







