Laboratory for Impact Testing of Aerospace Structures (LISA)

Type of Infrastructure

Impact testing plant

Main technical features

Requisito	Valore
Peso totale dell'articolo di prova	Fino a 10 ton con qualsiasi angolo del portale; fino a 20 ton con angolo portale a 90°.
Assetto di prova alfa,r (assetto dell'articolo di prova al rilascio)	Potenzialmente qualsiasi, compatibilmente con gli ingombri dell'articolo di prova.
Angolo del portale (traiettoria rispetto all'orizzontale fino al momento del rilascio)	Qualsiasi angolo tra 5 e 90 gradi con un errore di +/- 1°.
Velocità del carrello	Fino a 20 m/s per ogni angolo del portale con un errore pari a +/- 5%
Superficie d'impatto (suolo)	Soffice con dimensioni di 22m x 90m; Rigida con dimensioni di 19m x 90m; Acqua con dimensioni di 22m x 90m e profondità pari a 5 m.

Application Domains

The application domains of LISA are those concerning experimentation activities on full-scale structures for research and development in the field of aeronautical and helicopter crashworthiness.

The characteristics of the system are proposed as a tool to help the development of future crashworthiness regulations and also for their validation through full scale tests.

In the space sector, the plant is applicable in the development and validation of impact energy absorption systems.

Main measuring instruments/techniques

At the LISA plant there is a wide range of instruments and measurement techniques ranging from high-speed movie recording, anthropomorphic dummies, embarkable data acquisition systems and crash resistant, SW for movie analysis for measuring kinematic quantities in impact dynamics, accelerometers for measuring acceleration levels, inertial platform for measuring rotational speeds.

Operational Status

The LISA plant is under extraordinary maintenance for technological adaptation and restoration and will resume operations by Dec 2024.