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Electric Lightweight Retractable Landing Gear

Retractable Landing Gear - Electrically Operated - Low Maintenance - Low weight

The electrically retractable lightweight landing gear (LG) has been developed by ACENTISS GmbH for manned, optionally piloted and unmanned light aircraft. The landing gear is currently installed as part of the ELIAS Technology Demonstrator - an optionally piloted ultralight aircraft which has been in operation since 2012. The landing gear has been designed for paved and grass runways.

The retractable landing gear reduces the aircraft drag and allows for a free 360° view of video sensors and other payloads mounted under the fuselage.

The objective of ACENTISS was to develop a maintenance-free (except for the brakes) reliable electric landing gear that can be installed in thin aircraft wings. To allow a simple robust design, an innovative rectangular cross section of the wheel fork with elastomer elements inside were chosen to avoid the use of a guidance mechanism (scissors). The landing gear doors are directly linked with the gear to avoid separate actuators.

For manned application, a mechanical emergency release system is available.

- ▶ **All metal parts are made of high strength aluminum alloys and nickel plated**
- ▶ **The gear can be stored in wings with only 150mm thickness**
- ▶ **Fully separate LED cockpit indication of gear operation and extended position**
- ▶ **Electronic gear controller**
- ▶ **Steering by differential braking**
- ▶ **Prepared for electric nose wheel steering for optionally piloted and unmanned aircraft**
- ▶ **Gear doors linked to the gear leg to avoid separate doors actuators**
- ▶ **Flexible design which can be easily adapted to customer requirements**
- ▶ **Scalable up to 750kg MTOW**

Technical Data

Application:	manned and optionally piloted light aircraft; version for unmanned aircraft in preparation
Main LG height:	610 mm (incl. wheel)
Wheel diameter:	260 mm (4" hub) with shoe-type brake (modified Lilliput wheel from Tost); bigger wheels with disk brake are possible, depending on size of gear bay
Extended locking:	spring loaded self locking struts
Electric actuator:	24VDC self-locking linear actuator
Landing gear doors:	CFRP doors linked to the landing gear leg
Total system weight	22 kg

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