

Zeppelin NT



The concept of the semi-rigid airship was re-defined with the development of the Zeppelin NT. It is the only kind of airship worldwide that has a rigid internal structure, in contrast to a blimp (non-rigid airship).

The maiden flight of the Zeppelin NT was on September 18, 1997. Apart from its shape, the Zeppelin NT is completely different from earlier airships. The Zeppelin Luftschifftechnik GmbH & Co KG (ZLT) combined experience with state-of-the-art technology to get the Zeppelin airship airborne again.

A maximum of safety and comfort is the most important feature of the design concept of the Zeppelin NT. NT means New Technology. It stands for a high-tech approach that has set new standards.

The rigid structure has a triangular shape and is made of aluminum and carbon fiber. With its very low weight of 1,000 kg (2,205 lbs) it meets the highest demands concerning stability and maneuverability. The lift is provided by non-flammable helium, which is contained in an envelope made of extremely tear-resistant material. Thanks to an innovative propulsion concept employing swiveling propellers and the latest avionics equipment with fly-by-wire flight controls, pilots can conduct maneuvers similar to a helicopter. Furthermore, a holding crew is not necessary during take-off and landing. Even lightning strikes have hardly any influence on the flight characteristics – an uncompromising safety concept, which is part of every technical detail.

Technical data of the Zeppelin NT 07

Zeppelin LZ N07 – an airship with new technology

Maiden flight:	September 18, 1997
Engines:	Lycoming IO-360 with 147 kW/197 hp each
Length:	75 m (246 ft)
Max. width:	19.5 m (64 ft)
Height:	17.4 m (57 ft)
Envelope volume:	8,425 m ³ (297,526 cu ft)
Max. take-off weight:	8,040 kg (17,725 lbs)
Payload:	1.900 kg (4,188 lbs)
Max. speed:	125 km/h (78 mph)
Max. flight altitude:	2,600 m (8,530 ft)
Max. endurance:	ca. 24h
Range:	900 km (486 NM)

Structure

The very stable primary structure is a lightweight with a weight of approx. 1,000 kg (2,200 lbs). It consists of carbon-fiber trusses in a triangular arrangement and three aluminum longerons that are tightly wound by aramid ropes. All main components, such as the gondola, tail unit and the propulsions, are mounted on this rigid structure. Thus, even in case of pressure loss, an optimal maneuverability is guaranteed.



Framework Node



Node Plate



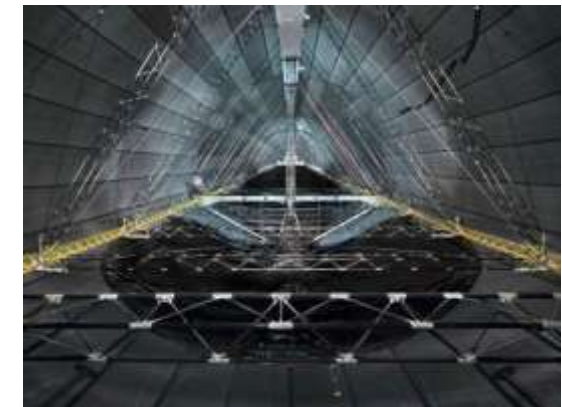
Carbon Fiber Components



Erection of Framework



Erection of Framework



Framework inside Hull

Envelope

Non-flammable helium provides the required lift within the envelope that is made of high-strength multilayer laminate. The envelope has a slight super-pressure of 5 mbar. Air bags inside the envelope, the so-called ballonets, keep the internal pressure constant in each flight situation and ensure highest safety.



Slipping the Hull over the Frame



Slipping the Hull over the Frame



Slipping the Hull over the Frame



Slipping the Hull over the Frame



Slipping the Hull over the Frame



Slipping the Hull over the Frame

Swiveling propellers

Three propellers with a swivel angle of up to 120 degrees plus a lateral propeller, which is driven by the rear engine, enable best maneuverability and an unrivaled, smooth and economical flight. The capabilities of a vertical take-off, a precise landing, hovering on one spot and a backward flight provide unique flight characteristics enabled by the swiveling propellers.



Rear Propeller Assembly



Rear Propeller Assembly



Rear Propeller Assembly



Rear Propeller Assembly



Starboard Propeller



Port Propeller

Propulsion systems

Thanks to the internal primary structure, the engines are mounted on both sides and at the rear, where they can operate efficiently. The in-flight comfort in the cabin is not disturbed by any noise of the propellers or vibrations. Propulsion is achieved by three strong and well-proven 197-hp aircraft engines.



Rear Propeller Drive



Rear Propeller Drive



Rear Propeller Drive



Rear Propeller Drive



Side Propeller



Side Propeller – Vectored for Ascent

Cockpit and cabin

The cockpit is a clearly structured high-tech workplace equipped with latest avionics. "Fly-by-wire" control systems with a joystick enable precise maneuvers and relieve the pilots. A mission display is available as an option. The cabin can accommodate 2 pilots and up to 12 passengers. An adjustable cabin permits a quick conversion for different missions.



Fly-by-Wire



Instrument Panel



Overhead Panel



Passenger Cabin with Panoramic Windows



Pilot's Cockpit



Pilot's Cockpit

Take-off and landing

The take-off and landing procedures, which are optimized by the swiveling propellers, require a ground crew of only 3 members under normal weather conditions. Advantages: lower employment costs and shorter "turn around" times. The nose is decoupled from the mast truck when taking off. When landing, the airship is self-maneuvering with the propeller thrust into the desired position. In order to moor the Zeppelin, the nose line is attached to the mooring mast line and the Zeppelin is pulled towards the mast.



Zeppelin Exits Hangar



Passenger Boarding



Passengers Preparing to Board



Zeppelin at Mobile Mooring Mast



Zeppelin Shortly Before Take-off



Zeppelin Being Pulled to the Mooring Mast