

## First idea to series production

### The chronologic development of the Zeppelin NT project

- Autumn 1988 First thoughts are made about whether reviving the Zeppelin airships would be technologically and economically profitable. In light of this, the documentation of historic Zeppelin airship aviation, stored in the archive of the Luftschiffbau Zeppelin GmbH, is evaluated, and the effectiveness of current airship projects is studied.
- December 1990 A feasibility study and a market survey discuss technical possibilities, construction costs, and subsequent operation of modern Zeppelin airships. The first matrix shows a sales potential of around 80 Zeppelin airships in the sectors tourism, advertisement, and special scientific missions.
- March 1991 The proof on concept is elaborated. The remote-controlled test model weighs 20 kg (44 lbs) at a length of 10 m (33 ft) and is powered by three electric motors. It reveals excellent flight characteristics during the very first test flight. It shows that the basic concept of a rigid structure in combination with the newly designed swivelling propellers fixed to it guarantee highest safety and so far unmatched manoeuvrability.
- Summer 1991 The development team files and receives several patents worldwide. These patents include, amongst others, the triangle structure, the arrangement of the propellers, the ballonet design, and the carbon-fiber girders.
- September 1993 Zeppelin Luftschifftechnik GmbH (today ZLT Zeppelin Luftschifftechnik GmbH & Co KG), based in Friedrichshafen, is founded. It is connected to the former Zeppelin airshipbuilding under common law and handles the development and production of Zeppelins of New Technology. Main shareholders of the company are Luftschiffbau Zeppelin GmbH, Zeppelin GmbH, ZF Friedrichshafen AG, and ZF-Lemförder Metallwaren AG.
- Spring 1994 Preparatory studies for the prototype are in full swing. The rigid 75 m (246 ft) long and 14 m (56 ft) high structure is assembled in the new exhibition hall 10. For this purpose, this hall was specifically constructed 4 m (13 ft) higher than needed for regular use for exhibitions.
- September 1995 The construction regulations for airships capable of transporting more than 9 passengers, conjointly developed with the Luftfahrt-Bundesamt (Federal Office for Civil Aeronautics), are approved.
- November 1995 Zeppelin Luftschifftechnik GmbH is officially acknowledged as development company by the Luftfahrt-Bundesamt (Federal Office of Civil Aeronautics) in Brunswick.
- July 1996 The LZ N07 prototype under construction is presented to the public and the media for the first time, raising great attention.
- September 1997 Approximately 30,000 curious onlookers watch the Zeppelin's maiden flight on 18 September. At 19:47, the Zeppelin NT 07 demasts in front of exhibition hall 10 in Friedrichshafen and lands after a 40-minute flight in front of the new Zeppelin hangar in Allmannsweiler. This hangar is the largest in Southern Germany, measuring 110 m (361 ft) in length, 69 m (226 ft) in width, and 32 m (105 ft) in height.
- August 1998 On August 8, the Zeppelin NT 07 performs its first anchoring outside of Friedrichshafen. The airship accomplishes a cross-country flight via Altenrhein (Switzerland) to Echterdingen near Stuttgart (Germany). The Zeppelin NT 07 landed at Stuttgart Airport.
- May 1999 The production of the parts for the first serial airship starts. The first flight is expected for the end of 2000. The prototype's technical design has proven itself and can be applied to the serial airship without major modifications.

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- October 1999 The Zeppelin NT 07 accomplishes its so far longest distance flight of more than 680km (423miles). The route leads the ship to Switzerland past the cities of Weil am Rhein, Basel, and Bern, with its turning point in Neuchâtel. The flight is for a good cause: the airship transports 15 kg (33 lb) of Zeppelin collectors' mail for the Pestalozzi Children's Village in Wahlwies.
- February 2000 The support structure of the first serial airship is completely assembled in February 2000. The envelope is applied to the support structure in May of the same year.
- July 2000 On 2 July, Count Zeppelin's granddaughter, Elisabeth Veil, christens the Zeppelin NT 07 prototype "Friedrichshafen" on the occasion of Zeppelin's centennial.
- August 2000 The Zeppelin NT 07 returns from its big tour through Germany. In its course, the airship conducted test flights between 13 July and 1 August, and travelled more than 3,600 km (2,237 miles) in about 75 flight hours. Highlight of this tour was the visit of the EXPO at Hanover on 21 July.  
The test programme included noise level measurements, avionics tests, and take-offs and landings. Here, the Zeppelin NT demonstrated excellent manoeuvrability on the North Sea coast in winds of up to 50 km/h (27 kts).
- October 2000 The development and production company Zeppelin Luftschifftechnik (ZLT) aspires an expansion of its business area. It will be an active part in the commercial launch of the Zeppelins of New Technology as the operating company "Deutsche Zeppelin-Reederei" (DZR). The Deutsche Zeppelin-Reederei will not only be the expertise and service centre concerning the airship, but also manage the flight operations and pilot training.
- December 2000 The Zeppelin NT 07 prototype has accumulated more than 800 flight hours in about 220 flights. The official test flight programme has successfully been completed. The flight data collected during three years is being processed.
- January 2001 The Deutsche Zeppelin-Reederei is founded as the operating company of the Zeppelin Luftschifftechnik GmbH.
- April 2001 The Zeppelin NT 07 receives the type certification by the Luftfahrt-Bundesamt (Federal Office of Civil Aeronautics). The ceremonial handing over of the certificate takes place during the inauguration of the "AERO 2001" on 26 April at Friedrichshafen. In addition, the Zeppelin Luftschifftechnik GmbH receives the certification as airship-manufacturing company.
- May 2001 On 19 May, the second airship takes off at 10:25 for its first flight. Pilots Fritz Günther and Dominique Manière conduct several tests with the new Zeppelin airship during their 2.5 hours long commissioning test flight.
- June 2001 A spectacular transfer of Zeppelin collectors' mail from the Zeppelin NT 07 prototype "Friedrichshafen" to the Lake Constance passenger ship "Graf Zeppelin" is conducted on 2 June. Albeit the bad weather conditions with gusty winds of up to 20 knots, a mailbag is placed exactly on the passenger deck of the motor boat.  
The Zeppelin NT 07 prototype "Friedrichshafen" participates in the "44th International Aerosalon" Paris/Le Bourget, the biggest aviation fair of the world, from 17 to 24 June. This is the first time since the end of the 1920s that a Zeppelin airship cruises above the French capital.
- August 2001 On 10 August, His Royal Highness Carl, Duke of Württemberg christens the first serial airship "Bodensee", raising great media attention.

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- August 2001 On 14 August, the Deutsche Zeppelin-Reederei receives the certification as operating company by the Luftfahrt-Bundesamt (Federal Office of Civil Aeronautics). Thus, commercial passenger service consisting of 1-hour sightseeing flights over Lake Constance can be picked up the very next day. Since then, up to 10 sightseeing flights over eastern or western Lake Constance are offered on a daily basis.
- May 2002 The "Bodensee" visits the International Aerospace Exhibition and Conferences in Berlin, using this first external deployment for passenger flights ex Berlin Tempelhof over the federal capital of Germany.
- August 2002 Successful deployments in Berlin and at the Bundesgartenschau (Federal Horticultural Exhibition) in Stuttgart dragged a lot of attention on the Zeppelin NT 07 and led to a huge demand for flight tickets. After just one year of passenger operations and only eight months of operating, the 10,000th passenger is welcomed on board.
- February 2003 The second serial airship takes off for its maiden flight on 8 February.
- March 2003 The 2003 season is inaugurated for the first time with two Zeppelin airships certified for commercial flight operations.
- April 2003 The Zeppelin airship "Bodensee" offers sightseeing flights ex Freiburg for the first time. More than 1000 passengers take their chance within three weeks.
- May 2003 The Zeppelin NT 07 receives certification for night flights under visual flight rules (VFR).
- June 2003 The Zeppelin NT 07 flies to Thuringia for the first time. More than 400 passengers ride in the airship on one weekend during the "Day of Environment" at the Wismut GmbH in Gera.
- July 2003 The Zeppelin NT 07 visits the city of Bad Homburg 90 years after the first imperial airship parade in that city. Approximately 1300 passengers ride in the airship ex Kronenhof.
- September 2003 The Zeppelin airship flies above the Bavarian capital of Munich during the Oktoberfest. 700 passengers take their chance to ride in a Zeppelin airship above the biggest folk festival of the world.
- October 2003 The Deutsche Zeppelin-Reederei upgrades the flight plan with three new destinations: apart from Ravensburg and Salem, the fairy-tale castle Neuschwanstein is included.
- December 2003 7 December marks the end of the flight season of 2003. More than 17,000 passengers flew with the two world's state-of-the-art airships this year.
- March 2004 The ZLT sells one Zeppelin NT 07 to the Japanese airship operator Nippon Airship Corporation. The sales contract is signed at Friedrichshafen on 02<sup>nd</sup> March.
- March 2004 The Deutsche Zeppelin-Reederei is the first company in the world to receive a certification as flight school for airships.
- March 2004 The Deutsche Zeppelin-Reederei trains the ground crew and pilots of the Nippon Airship Corporation for airship operation in Japan.
- May 2004 The Zeppelin NT 07 commences its 2-month promotion campaign through Eastern Europe on behalf of BMW AG. The biggest flying billboard of the world announces the market launch of the BMW 1 series, in Slovakia, Romania, Croatia, Slovenia, Turkey, Bulgaria, and Hungary.
- June 2004 The Zeppelin airship bought by Nippon Airship Corporation is delivered in the course of a ceremonial act on 12 June. The ceremony is attended by numerous celebrities of all sectors and raises great media attention.
- September 2004 The Zeppelin NT 07 cruises above seven cities of Hesse on behalf of Hesse radio station "Hitradio FFH" for almost two months, raising great attention with passenger flights and events on the ground.

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- November 2004 The flight season 2004 ends at the end of November. A total of 39,000 have ridden in the Zeppelin NT 07 by that time.
- January 2005 On 14 January, the Zeppelin NT 07 sold to the Japanese Nippon Airship Corporation takes off at the port city of Kobe for its first flight in the Far East.
- June 2005 The Sofema Group equips the Zeppelin NT 07 with an observation system of the "Wescam" company on the occasion of the Aeronautical Fair at "Le Bourget", chartering the airship for 2 weeks for demonstration purposes in Paris.
- June 2005 The Zeppelin NT 07 is chartered as flying billboard by the sponsor MasterCard during the Confederations Cup 2005.
- July 2005 Hesse commercial broadcaster "Hitradio FFH" wins the so-called Academy Award for Radio Stations by deploying the Zeppelin NT 07. In September, the Zeppelin NT07 cruises over Hesse broadcasting 50,000 top hits in total.
- July 2005 DeBeers and Zeppelin Luftschifftechnik sign a treaty called "Diamonds for development in Africa", a diamond project in Africa with a duration of two years. The revenue will be used to support programmes creating social benefits, like health care or transport and education facilities.
- August 2005 The Zeppelin NT 07 is used for traffic supervision by the DLR (German Aerospace Center) and the police of Cologne during the World Youth Day 2005 in Cologne.
- August 2005 An international researchers association including universities and research facilities is founded with priorities in the regions of Baden-Wurtemberg and Brandenburg, based on the know-how achieved during flights with the Zeppelin NT and on the scientific results obtained during the CargoLifter programme.
- January 2006 The construction of another Zeppelin NT 07 airship in Friedrichshafen has been approved. The fourth airship will be operated commercially starting from flight season 2008.
- June 2006 The Zeppelin NT 07 is deployed by the DLR (German Aerospace Center) during the Soccer World Cup events in Cologne for capturing and processing traffic data.
- August 2006 After 5 years of passenger operations, the Deutsche Zeppelin-Reederei has transported more than 55,000 passengers.
- April 2007 This year, the 2,600 m<sup>2</sup> (27,986 ft<sup>2</sup>) large envelope serves as object of art: from April to mid of August 2007, world-famous artist Stefan Szczesny transforms the Zeppelin NT 07 into a flying work of art. The motto of this conjoint project with the island of Mainau: "A dream of an earthly paradise."
- July 2007 In summer 2007, the Institute for Chemistry and Dynamics of the Geosphere at the Research Center of Jülich conducts climatological measurement flights in the lower planetary boundary. Especially for this event, a top platform for the Zeppelin NT 07 is constructed.
- July 2007 The Zeppelin NT (former „Bodensee“) based in Japan and operated by Nippon Airship Corporation (NAC) receives the official Japanese passenger transportation certification on July 3rd. NAC is now able to add fare paying passenger operations to their already existing tasks as there are Advertising flights and Special Missions. DZR is therefore training some additional 3 pilots and mechanics for NAC

- September 2007 The Zeppelin NT based in Botswana since 2005 for the search of Diamonds is heavily damaged on September 20th by a small tornado, while being moored at its mast. One crew member receives minor injuries. A repair to the airship is not economical, since it was the prototype of the Zeppelin NT. The Airship is being dismantled in Botswana. Single parts are being shipped back to Friedrichshafen.
- May 2008 On May 9<sup>th</sup>, the American company „Airship Ventures“ signs the contract for the purchase of the Zeppelin NT serial No. 04. At time of signature the Airship is not yet assembled. After delivery to the US, this Zeppelin NT will be operated, mainly in the San Francisco area for the purpose of fare paying passenger and advertising operations.
- May 2008 Zeppelin NT, serial No. 04, starts on May 21<sup>st</sup> for its maiden flight. Our engineers were able to reduce the overall weight of serial No. 04 by 200 kg. In addition this youngest of all Zeppelin NT's shows improved flight and performance values.
- May 2008 A long development process is being finished successfully. On May 29<sup>th</sup>, the Federal Aviation Administration of the US (FAA) approves the registration and certification of the Zeppelin NT for the USA. Thereby the Zeppelin NT has achieved three of the most important certifications in the world: EASA, FAA, JACB.
- May 2008 On May 25<sup>th</sup>, the world famous Austrian Paraglider „Mad“ Mike Küng starts in a spectacular action with its paraglider out of a flying Zeppelin. Küng jumps out of the Airship, landing SPOT ON into an Italian sports car, which is situated on a passenger vessel on Lake Constance. With this action happening in the harbour of Lindau (Bavaria) the famous world record holder adds another fantastic record to its impressive list.
- July 2008 Branded with the colours of the famous Brewery „Stella Artois“, Zeppelin NT, serial No. 04 operates for passenger flights over London from July 10th until August 21st.
- This is a premiere: The first commercial airship passenger operation over the British capital.
- At the same time, though, it is also the last assignment of Serial No. 04 under the umbrella of DZR.
- It is planned that serial No. 04 will be shipped to the US by end of September, which will initially terminate the double Zeppelin operations in Europe.
- September 2008 Zeppelin NT, serial No. 04 starts on September 27th from Hamburg to its final destination in the US.
- The Zeppelin NT will be shipped by a Dockwise vessel to Beaumont/Texas.
- The rest of the route, to its final destination of Moffett Field, CA will be achieved by flying the Zeppelin NT.
- From Moffett Field, the new operator, „ Airship Ventures“ will offer passenger rides over San Francisco and the area.
- October 2008 After a trip of 4 weeks the Zeppelin NT arrives on October 29th at Moffett Field, California.
- The first flight over the Golden Gate Bridge in San Francisco will remain an unforgettable even, opening a new era in Zeppelin passenger flights.

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- October 2008 Already for the second times, scientist from the JÜLICH-Science Center will use the unique Flight Capabilities of the Zeppelin NT for atmospheric studies.
- For this task, the Airship was fitted with highly modern and precise measurement devices.
- November 2008 The Zeppelin NT, serial No. 04 is christened in the USA on the name of „Eureka“.
- June 2009 On June 18th the roofing ceremony of the new passenger building of the DZR is being held.
- The new building, which will house the a state of the art Restaurant apart from the new passenger Check-In and Lounge Area, is replacing the former Check-In tent.
- The guests of the Restaurant now have a fantastic view over the Zeppelin NT landing site in a unique atmosphere.
- December 2009 ZLT is signing the PROKNOS Project. (PROcess development of hybrid material KNOT-structures)
- PROKNOS is a joint venture with the Technical University of Munich, whereas adhesive technology is being studied to replace welding technology. Such innovative adhesive technology could be used on the NT-Longerons, where nowadays welding technology is being used. Results would be a considerable increase in life time as well as a notable reduction in weight.
- March 2010 Zeppelin NT is testing from March 23<sup>rd</sup> until March 24<sup>th</sup> on a 24-hour-flight a new developed Long-Endurance-System.
- During its non-stop flight over southern Germany the Airship is flying a distance of 1450 km, with still several hours of remaining fuel on board.
- The two additional fuel tanks of the so called „Extended Range Kit“ are capable of holding 700 Liter of fuel (each) and are supposed to open new opportunities during long endurance surveillance and transit flights.
- March 2010 Under the management of ZLT, on March 31st the „NERSOP“ project (Noise Emission Reduction of Suboptimal Operating Propellers) is being finished.
- This joint project, under participation of the University of Stuttgart has its final goal in minimizing propeller noise.
- The result of this project is an aerodynamically improved propeller with two additional blades. This propeller with outstanding noise reducing effect will in the future be used for the assembly in Zeppelins.
- May 2010 Airship Ventures achieves on May 28<sup>th</sup> with „Eureka“ a long distance flight of 740 km.
- The Zeppelin NT does need 9 hours for its flight from San Francisco to San Diego.
- June 2010 On June 22<sup>nd</sup>, DZR is proud to announce and celebrate its passenger Nr. 100,000 since the start of commercial Zeppelin NT flights in 2001.
- Mr. Thomas Brandt, CEO of DZR, as well as Mr. Andreas Brand, Major of the City of Friedrichshafen congratulate the Lady Passenger.
- During this anniversary flight, DZR is again transporting Airship-Mail for collectors´ use, the income of which is dedicated to charity projects.

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- July 2010 Since NAC had to stop their flight operations in May, due to lack of finances, ZLT-Engineers are dismantling the Zeppelin in Japan.
- The Airship is planned to return to Friedrichshafen in single pieces.
- October 2010 Starting October 9<sup>th</sup>, the Airship is housing the branding of "T-City Friedrichshafen. "Wir leben Zukunft" (T-City Friedrichshafen, we live the future). This is advertising to citizens and visitors the joint project between the city of Friedrichshafen and Deutsche Telekom.
- The branding partnership is planned until May 2012.
- October 2010 The Zeppelin NT has been overflying the Lake Constance under contract of the GeoForschungsZentrum GFZ (Geo research Center) of the DLR (German Aerospace Center) to detect GPS-signals that are reflected by the water surface of the Lake.
- Depending on the accuracy of the GPS-method the researches expect being able to use in the future satellite based surveillance of long term sea level changes and detection of Tsunami-Waves.
- March 2011 On March 11<sup>th</sup>. 2011, the Zeppelin NT took off for a special mission over Paris. The airship was chartered by the French company "Airship Vision International" on behalf of the French government agency for radiation protection, in order to scan the territory of Paris. The mission task was to localize all gamma radiation in the city and to map the detected sources. The Zeppelin NT was operating during 5 days over Paris, flying a grid pattern in low level flight mode of 150 m above ground. The collected data will generate a fundamental reference map of the gamma radiation of Paris and will help to pinpoint new gamma sources in case of terrorist attack with nuclear material.
- May 2011 ZLT Zeppelin Luftschifftechnik GmbH & Co. KG sells three Zeppelin NT to the Goodyear Tire & Rubber Company. Goodyear ordered the new Zeppelin NT model LZ N07-101 at costs of approximately 14.5 Mio. Euro. The first Zeppelin NT will commence its Goodyear operation in January 2014. Besides the airship sale the deal also includes a close co-operation between the partners. On Tuesday, May 3<sup>rd</sup> 2011 Thomas Brandt, CEO of Zeppelin Luftschifftechnik presented details of this largest deal in the history of the Friedrichshafen based company. „The Goodyear contract is a milestone in our company history. With this three airship sale we double the worldwide Zeppelin NT fleet.”