LZ 129 *Hindenburg*

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(Redirected from Airship Hindenburg)

"The Hindenburg" redirects here. For other uses, see Hindenburg.

LZ 129 *Hindenburg* (Luftschiff Zeppelin #129; Registration: **D-LZ 129**) was a large German commercial passenger-carrying rigid airship, the lead ship of the *Hindenburg* class, the longest class of flying machine and the largest airship by envelope volume.[1] It was designed and built by the Zeppelin Company (*Luftschiffbau Zeppelin GmbH*) on the shores of Lake Constance in Friedrichshafen and was operated by the German Zeppelin Airline Company (*Deutsche Zeppelin-Reederei*). The airship flew from March 1936 until destroyed by fire 14 months later on May 6, 1937, at the end of the first North American transatlantic journey of its second season of service. Thirty-six people died in the accident, which occurred while landing at Lakehurst Naval Air Station in Manchester Township, New Jersey, United States.

Hindenburg was named after the late Field Marshal Paul von Hindenburg (1847–1934), President of Germany (1925–1934).

LZ-129 *Hindenburg*

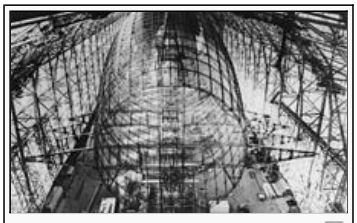
Hindenburg at NAS Lakehurst

Type	*Hindenburg*-class airship
Manufacturer	Luftschiffbau Zeppelin GmbH
Construction number	LZ 129
Manufactured	1931-36
Registration	*D-LZ 129*
First flight	March 4, 1936
Owners and operators	Deutsche Zeppelin Reederei
In service	1936–37
Flights	63
Fate	Destroyed in fire May 6, 1937

Contents

Design and development [edit]

Main article: Hindenburg-*class airship*



The *Hindenburg* under construction

The *Hindenburg* had a duralumin structure, incorporating 15 Ferris wheel-like bulkheads along its length, with 16 cotton gas bags fitted between them. The bulkheads were braced to each other by longitudinal girders placed around their circumferences. The airship's outer skin was of cotton doped with a mixture of reflective materials intended to protect the gas bags within from radiation, both ultraviolet (which would damage them) and infrared (which might cause them to overheat). The gas cells were made by a new method pioneered by Goodyear using multiple layers of gelatinized latex rather than the previous goldbeater's skins. In 1931 the Zeppelin Company purchased 5,000 kg (11,000 lb) of duralumin salvaged from the wreckage of the October 1930 crash of the British airship R101, which might have been re-cast and used in the construction of the *Hindenburg*.[2]

The interior furnishings of the *Hindenburg* were designed by Fritz August Breuhaus, whose design experience included Pullman coaches, ocean liners, and warships of the German Navy.[3] The upper "A" Deck contained small passenger quarters in the middle flanked by large public rooms: a dining room to port and a lounge and writing room to starboard. Paintings on the dining room walls portrayed the *Graf Zeppelin*'s trips to South America. A stylized world map covered the wall of the lounge. Long slanted windows ran the length of both decks. The passengers were expected to spend most of their time in the public areas, rather than their cramped cabins.[4]

Dining room

The lower "B" Deck contained washrooms, a mess hall for the crew, and a smoking lounge. Harold G. Dick, an American representative from the Goodyear Zeppelin Company,[5] recalled "The only entrance to the smoking room, which was pressurized to prevent the admission of any leaking hydrogen, was via the bar, which had a swiveling air lock door, and all departing passengers were scrutinized by the bar steward to make sure they were not carrying out a lit cigarette or pipe."[6][7]

Lounge, with the world map painted on the wall

Use of hydrogen instead of helium [edit]

Helium was initially selected for the lifting gas because it was the safest to use in airships, as it is not flammable.[8] At the time, however, helium was also relatively rare and extremely expensive as the gas was only available as a byproduct of mined natural gas reserves found in the United States. Hydrogen, by comparison, could be cheaply produced by any industrialized nation and being lighter than helium also provided more lift. Because of its expense and rarity, American rigid airships using helium were forced to conserve the gas at all costs and this hampered their operation.[9]

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Despite a U.S. ban on the export of helium under the Helium Control Act of 1927, the Germans designed the airship to use the far safer gas in the belief that they could convince the US government to license its export. When the designers learned that the National Munitions Control Board would refuse to lift the export ban, they were forced to re-engineer the Hindenburg to use hydrogen for lift.[8] Despite the danger of using flammable hydrogen, no alternative gases that could provide sufficient lift could be produced in adequate quantities. One beneficial side effect of employing hydrogen was that more passenger cabins could be added. The Germans' long history of flying hydrogen-filled passenger airships without a single injury or fatality engendered a widely held belief they had mastered the safe use of hydrogen. The *Hindenburg*'s first season performance appeared to demonstrate this.

Operational history [edit]

Launching and trial flights [edit]

The *Hindenburg* in March 1936. The name of the airship was not yet painted on the hull.

Five years after construction began in 1931, the *Hindenburg* made its maiden test flight from the Zeppelin dockyards at Friedrichshafen on March 4, 1936, with 87 passengers and crew aboard. These included the Zeppelin Company chairman, Dr. Hugo Eckener, as commander, former World War I Zeppelin commander Lt. Col. Joachim Breithaupt representing the German Air Ministry, the Zeppelin company's eight airship captains, 47 other crew members, and 30 dockyard employees who flew as passengers.[10] Although the name *Hindenburg* had been quietly selected by Eckener over a year earlier,[11] only the airship's formal registration number (D-LZ129) and the five Olympic rings (promoting the 1936 Summer Olympics to be held in Berlin that August) were displayed on the hull during its six trial flights. As the airship passed over Munich on its second trial flight the next afternoon, that city's Lord Mayor, Karl Fiehler, asked Eckener by radio the LZ129's name, to which he replied "*Hindenburg*".

The *Hindenburg*'s logotype as it appeared on the airship

The Zeppelin Company chairman's public pronouncement of the name greatly angered Propaganda Minister Joseph Goebbels, who immediately summoned Eckener to Berlin for a meeting the next day, at which the Nazi minister bluntly stated that he wanted the airship to be renamed the *Adolf Hitler*. When Eckener refused to do so, Goebbels then decreed that the airship would be referred to in Germany only as "LZ 129" and also warned Eckener that he could easily make the world-famous airshipman a "non-person" in the German media.[12] Although the name *Hindenburg* lettered in 6-foot-high (1.8 m) red script was added to its hull three weeks later, no formal naming ceremony for the airship was ever held.[13]

Flag of the Deutsche Zeppelin-Reederei GmbH

The airship was operated commercially by the Deutsche Zeppelin Reederei GmbH (DZR), which had been established by Hermann Göring in March 1935 to increase Nazi influence over zeppelin operations.[14] The DZR was jointly owned by the Luftschiffbau Zeppelin (the airship's builder), the Reichsluftfahrtministerium (German Air Ministry), and Deutsche Lufthansa A.G. (Germany's national airline at that time), and also operated the LZ 127 *Graf Zeppelin* during its last two years of commercial service to South America from 1935 to 1937. The *Hindenburg* and its sister ship, the LZ 130 *Graf Zeppelin II* (launched in September 1938), were the only two airships ever purpose-built for regular commercial transatlantic passenger operations, although the latter never entered passenger service before being scrapped in 1940.

After a total of six trial flights made over a three-week period from the Zeppelin dockyards where the airship had been built, the *Hindenburg* was ready for its formal public debut with a 4,100-mile (6,598 km) propaganda flight around Germany (*Die Deutschlandfahrt*) made jointly with the *Graf Zeppelin* from March 26 to 29.[15] This was to be followed by its first commercial passenger flight, a four-day transatlantic voyage to Rio de Janeiro that departed from the Friedrichshafen Airport in nearby Löwenthal on March 31.[16] After again departing from Löwenthal on May 6 on its first of ten round trips to North America made in 1936,[17] all subsequent transatlantic operations flown by the *Hindenburg* to both North and South America originated at the airport at Frankfurt am Main.[18][19]

Die Deutschlandfahrt [edit]

Propaganda leaflet dropped from the *Hindenburg* during the *Deutschlandfahrt* quoting Adolf Hitler's March 7, 1936, Rhineland speech in the Reichstag

Although designed and built for commercial transatlantic passenger, air freight, and mail service, at the behest of the Reich Ministry for Public Enlightenment and Propaganda (*Reichsministerium für Volksaufklärung und Propaganda* or *Propagandaministerium*), the *Hindenburg* was first impressed into use by the Air Ministry (its DLZ co-operator) as a vehicle for the delivery of Nazi propaganda.[20] On March 7, 1936, ground forces of the German Reich had entered and occupied the Rhineland, a region bordering the Netherlands, Luxembourg, Belgium, and France, which had been designated in the 1920 Treaty of Versailles as a de-militarized zone established to provide a buffer between Germany and those neighboring countries.

Cover carried on the *Hindenburg* during the 1936 *Deutschlandfahrt*

In order to justify its remilitarization — which was also a violation of the 1925 Locarno Pact,[21] — a "post hoc" plebiscite (or referendum) was quickly called by Hitler for March 29 to "ask the German people" to both ratify the Rhineland's occupation by the German Army, and to approve a single party list composed exclusively of Nazi candidates to sit in the new Reichstag. The *Hindenburg* and the *Graf Zeppelin* were designated by the government as a key part of the process.[22]

As a public relations ploy, Propaganda Minister Goebbels demanded that the Zeppelin Company make the two airships available to fly "in tandem" around Germany over the four-day period prior to the voting with a joint departure from Löwenthal on the morning of March 26.[23] While gusty wind conditions that morning would prove to make the process of safely launching the new airship a difficult one, the *Hindenburg*'s commander, Captain Ernst Lehmann, was determined to impress the politicians, Nazi party officials, and press present at the airfield with an "on time" departure and thus proceeded with its launch despite the

adverse conditions. As the massive airship began to rise under full engine power it was caught by a 35-degree crosswind gust, causing its lower vertical tail fin to strike and be dragged across the ground, resulting in significant damage to the bottom portion of the airfoil and its attached rudder.[24][25]

Zeppelin Company Chairman Eckener, who had opposed the joint flight both because it politicized the airships and had forced the cancellation of an essential final endurance test for the *Hindenburg*, was furious and rebuked Lehmann:

> *"How could you, Mr. Lehmann, order the ship to be brought out in such windy conditions? You had the best excuse in the world for postponing this idiotic flight; instead, you risk the ship, merely to avoid annoying Mr. Goebbels. Do you call this showing a sense of responsibility towards our enterprise?"*[26]

The *Graf Zeppelin*, which had been hovering above the airfield waiting for the *Hindenburg* to join it, thus had to start off on the propaganda mission alone while the LZ 129 was returned to its hangar. There temporary repairs were quickly made to its empennage before joining up with the smaller airship several hours later.[27] As millions of Germans watched from below, the two giants of the sky sailed over Germany for the next four days and three nights, dropping propaganda leaflets, blaring martial music and slogans from large loudspeakers, and broadcasting political speeches from a makeshift radio studio on board the *Hindenburg*.[28]

First commercial passenger flight [edit]

With the completion of voting on the referendum (which the Government claimed had been approved by a "98.79% 'Yes' vote"[29]), the *Hindenburg* returned to Löwenthal on March 29 to prepare for its first commercial passenger flight, a transatlantic passage to Rio de Janeiro scheduled to depart from there on March 31.[30] Hugo Eckener was not to be the commander of the flight, however, but was instead relegated to being a "supervisor" with no operational control over the *Hindenburg* while Ernst Lehmann had command of the airship.[31] To add insult to injury, Eckener learned from an Associated Press reporter upon the *Hindenburg's* arrival in Rio that Goebbels had also followed through on his month-old threat to decree that Eckener's name would "no longer be mentioned in German newspapers and periodicals" and "no pictures nor articles about him shall be printed."[32] This action was taken because of Eckener's opposition to using the *Hindenburg* and *Graf Zeppelin* for political purposes during the *Deutschlandfahrt*, and his "refusal to give a special appeal during the Reichstag election campaign endorsing Chancellor Adolf Hitler and his policies."[33] The existence of the ban was never publicly acknowledged by Goebbels, and it was quietly lifted a month later.[34]

Zeppelin passenger lapel pins

1936 German Reich Air Mail "Zepps" C57 50 pf (Blue), C58 75 pf (Green). Legend: *"Mit LZ129 nach Nordamerika"*

On the first South America flight one of the airship's four Daimler-Benz 16-cylinder diesel engines suffered a wrist pin breakage during the outbound leg, and although repairs were made at Recife the engine could no longer deliver full power. A similar problem developed on the return journey when another engine failed off the African Gold Coast near Morocco, and as mechanics were attempting to repair it a second stalled and could not be restarted. By then running on just two of its four engines, the *Hindenburg* was in danger of drifting into the Sahara Desert, where a forced landing made without a ground crew and mooring mast available would have likely resulted in the airship having to be written off as damaged beyond repair. To avoid such a catastrophe, the crew raised the airship in search of counter-trade winds usually found above 5,000 feet (1,500 m), well beyond the airship's pressure altitude. Unexpectedly, the crew found such a wind at the lower altitude of 3,600 feet (1,100 m) which permitted them to guide the airship safely back to Germany after getting emergency permission from France to fly a more direct route over the Rhone Valley. The nine-day flight covered 12,756 miles (20,529 km) in 203 hours and 32 minutes of flight time.[35] All four engines were later overhauled and no further problems were encountered on later flights.[36]

The 1936 transatlantic season [edit]

The *Hindenburg* made 17 round trips across the Atlantic Ocean in 1936, its first and only full year of service, with ten trips to the United States and seven to Brazil. In July 1936, the airship also completed a record Atlantic double crossing in five days, 19 hours and 51 minutes. Among the famous passengers who travelled on the airship was German heavyweight boxing champion Max Schmeling, who returned home on the *Hindenburg* to a hero's welcome after knocking out Joe Louis in New York on June 19, 1936.[37] During the 1936 season the airship flew 191,583 miles (308,323 km), carried 2,798 passengers, and transported 160 tons of freight and mail, a level of success that encouraged the Luftschiffbau Zeppelin Company to plan the expansion of its airship fleet and transatlantic services.


LZ 129 arrival at Lakehurst, May 9, 1936. USS Los Angeles (ZR-3) is moored upper right.

The airship was reportedly so stable that a pen or pencil could be stood on a table without falling. Its launches were so smooth that passengers often missed them, believing that the airship was still docked to its mooring mast. The cost of one way passage between Germany and the United States was US$400, an especially considerable sum in the Depression era. Hindenburg passengers were generally affluent, including many public figures, entertainers, noted sportsmen, political figures, and leaders of industry.[38][39]

The *Hindenburg* was used again for propaganda purposes when it flew over the Olympic Stadium in Berlin on August 1 during the opening ceremonies of the 1936 Summer Olympic Games. Shortly before the arrival of Adolf Hitler to declare the Games open, the airship crossed low over the packed stadium while trailing the Olympic flag on a long weighted line suspended from its gondola.[40]

During 1936 the *Hindenburg* had a special Blüthner aluminium grand piano placed on board in the music salon, although the instrument was removed after the first year to save weight.[41] Over the winter of 1936–37, several alterations were made to the airship's structures. The greater lift capacity allowed ten passenger cabins to be added, nine with two beds and one with four beds, thus increasing the total passenger capacity to 72.[42] In addition, "gutters" were installed to collect rain

Olympiafahrt 1936 (Berlin) flown *Hindenburg* cover

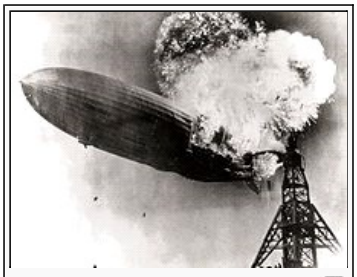
for use as water ballast: taking on rainwater ballast to compensate for the weight of fuel consumed during a voyage was more economical than venting hydrogen.

Another change was the installation of an experimental aircraft hook-on trapeze based on the system similar to the one used on the U.S. Navy Goodyear-Zeppelin built airships *Akron* and *Macon*. This was intended to allow customs officials to be flown out to the *Hindenburg* to process passengers before landing and to retrieve mail from the ship for early delivery. Experimental hook-ons and takeoffs were attempted on March 11 and April 27, 1937, but were not very successful, owing to turbulence around the area where the hook-up trapeze had been mounted. The loss of the ship ended all prospects of further testing.[43]

The final flight: May 3–6, 1937 [edit]

Main article: Hindenburg disaster

Last flight post card dropped over Cologne, May 3, 1937



A partially burned piece of mail on board the Hindenburg's last flight

After making the first South American flight of the 1937 season in late March, *Hindenburg* left Frankfurt for Lakehurst on the evening of May 3, on its first scheduled round trip between Europe and North America that season. Although strong headwinds slowed the crossing, the flight had otherwise proceeded routinely as it approached for a landing three days later.[44]

The *Hindenburg's* arrival on May 6 was delayed for several hours to avoid a line of thunderstorms passing over Lakehurst, but around 7:00 pm the airship was cleared for its final approach to the Naval Air Station, which it made at an altitude of 650 ft (200 m) with Captain Max Pruss at the helm. Four minutes after ground handlers grabbed hold of a pair of landing lines dropped from the nose of the ship at 7:21 pm, the *Hindenburg* suddenly burst into flames and dropped to the ground in just 37 seconds. Of the 36 passengers and 61 crew on board, 13 passengers[45] and 22 crew[46] died, as well as one member of the ground crew, making a total of 36 lives lost in the disaster.[47][48][49]

A fire-scorched duralumin *Hindenburg* cross brace salvaged from the crash site

The exact location of the initial fire, its source of ignition, and the initial source of fuel remain subjects of debate. The cause of the accident has never been determined conclusively, although many hypotheses have been proposed. Escaping hydrogen gas will burn after mixing with air and will explode when mixed with air in the right proportions. The covering also contained material (such as cellulose nitrate and aluminium flakes) which Addison Bain and other experts claim are highly flammable when combined in the right proportions.[50] This theory is highly controversial and has been rejected by other researchers[51] because the outer skin burns too slowly to account for the rapid flame propagation[44] and hydrogen fires had previously destroyed many other airships.[52] The duralumin framework of *Hindenburg* was salvaged and shipped back to Germany. There the scrap was recycled and used in the construction of military aircraft for the *Luftwaffe*, as were the frames of *Graf Zeppelin* and *Graf Zeppelin II* when they were scrapped in 1940.[53]

Notable appearances in media [edit]

- Footage of *Hindenburg* is shown in the 1937 film *Charlie Chan at the Olympics*, which depicts Chan on board for a flight across the Atlantic to attend the 1936 Summer Olympics in Berlin. The film was released on May 21, 1937, just 15 days after the wreck.
- The image of the burning airship was used as the cover of Led Zeppelin's self-titled debut album (1969).[54]
- *The Hindenburg* is a 1975 film inspired by the disaster, but centered around the sabotage theory. Some of these plot elements were based on real bomb threats before the flight began, as well as proponents of the sabotage theory.

Hindenburg in 1936, with reporters and film crew

Specifications [edit]

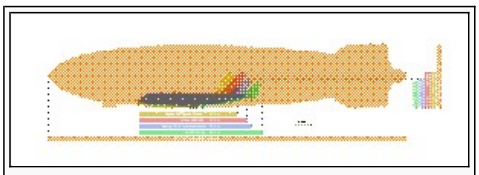
Data from Airships: A Hindenburg and Zeppelin History site[1]

General characteristics

- **Crew:** 40 to 61
- **Capacity:** 50–72 passengers
- **Length:** 245 m (803 ft 10 in)
- **Diameter:** 41.18 [55] m (135.1 ft 0 in)
- **Volume:** 200,000 m^3 (7,062,000 ft^3)
- **Powerplant:** 4 × Daimler-Benz DB 602 diesel engines, 890 kW (1,200 hp) each

Performance

- **Maximum speed:** 135 km/h (85 mph)



Hindenburg class airship compared to largest fixed wing aircraft

See also [edit]

- Hindenburg class airship
- Timeline of hydrogen technologies

- The Zeppelin Museum Friedrichshafen displays a reconstruction of a 33 m section of the *Hindenburg*.

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External links [edit]

- The short film *Giant Dirigible Sets Record, 1936/05/11 (1936)* is available for free download at the Internet Archive [*more*]
- "Hindenburg – End Of A Successful Voyage" (Standard 4:3) (1937), Pathgrams (film shows docking team, passengers)
- "Hindenburg – Passengers Disembarking" (Standard 4:3) (1937), Pathgrams \(film of passengers descending ramp)
- Technical Drawing of the LZ 129 Hindenburg
- Airships.net: Detailed history and photographs of interior and exterior of LZ-129 Hindenburg
- "The Hindenburg Makes Her Last Standing at Lakehurst", *Life* Magazine article from 1937
- eZEP.de, The webportal for Zeppelin mail and airship memorabilia
- Hindenburg: Sky Cruise. Illustrated account of a flight on the Hindenburg – with maiden voyage and final flight passenger lists
- Harold G. Dick Airship Collection – lists of contents of the collection
- ZLT Zeppelin Luftschifftechnik GmbH & Co KG. The modern Zeppelin company
- The Hindenburg at Navy Lakehurst Historical Society
- "The Air Liners Of The Future." *Popular Mechanics*, February 1930, the future of dirigibles as aviation experts predicted in 1930, drawings on pages 220 and 221 shows how aviation experts saw the Hindenburg then under construction, including an overhead glass covered dance floor
- "Super Zepp To Have All Luxuries Of A Liner."*Popular Mechanics,* July 1932, early drawing of future Hindenburg
- "Biggest Birds That Ever Flew." *Popular Science*, May 1962
- [1] "75 Years Since The Hindenburg Disaster" *The Atlantic*, May 8, 2012

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V T E	**Aircraft produced or designed by Luftschiffbau Zeppelin**
Lighter-than-air	LZ1 LZ2 LZ3 LZ4 LZ5 LZ6 LZ7 LZ8 LZ9 LZ10 LZ11 LZ12 LZ13 LZ14 LZ15 LZ16 LZ17 LZ18 LZ19 LZ20 LZ21 LZ22 LZ23 LZ24 LZ25 LZ26 LZ27 LZ28 LZ29 LZ30 LZ31 LZ32 LZ33 LZ34 LZ35 LZ36 LZ37 LZ38 LZ39 LZ40 LZ41 LZ42 LZ43 LZ44 LZ45 LZ46 LZ47 LZ48 LZ49 LZ50 LZ51 LZ52 LZ53 LZ54 LZ55 LZ56 LZ57 LZ58 LZ59 LZ60 LZ61 LZ62 LZ63 LZ64 LZ65 LZ66 LZ67 LZ68 LZ69 (LZ70 not built) LZ71 LZ72 LZ73 LZ74 LZ75 LZ76 LZ77 LZ78 LZ79 LZ80 LZ81 LZ82 LZ83 LZ84 LZ85 LZ86 LZ87 LZ88 LZ89 LZ90 LZ91 LZ92 LZ93 LZ94 LZ95 LZ96 LZ97 LZ98 LZ99 LZ100 LZ101 LZ102 LZ103 LZ104 LZ105 LZ106 LZ107 LZ108 LZ109 LZ110 LZ111 LZ112 LZ113 LZ114 (LZ115–LZ119 not built) LZ120 LZ121 (LZ122–LZ125 not built) LZ126 LZ 127 Graf Zeppelin (LZ128 not built) **LZ 129 Hindenburg** LZ130 (LZ131–LZ132 not built)
Heavier-than-air	C.I C.II L 1 Rammer Fliegende Panzerfaust ZSO 523
List of Zeppelins	

V T E	**Lists relating to aviation**
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Categories: LZ 129 Hindenburg