

Airship do Brasil



**Finalist of Brazil's National
Innovation Award 2016-2017**

www.adb.ind.br

Aerostats

Aerostats are fusiform tethered balloons that use helium for their lift and can be applied in a broad range of longstanding airborne sensing activities. They are easily employed in remote areas without previous infrastructure, and also, these devices are able to reach big heights for long periods. These balloons are connected to ground equipment such as winches or a special vehicle called Aerostat Launcher Vehicle (ALV), which supplies the apparatus with energy and harbors monitoring devices and controls.

Utilization

- Security and surveillance: aerial photography, employment of sensors and radars.
- Military activity: real time intelligence data collection
- Data transmission/repetition: installation of VHF and UHF repeaters, TV and radio transmissions
- Marketing: aerial outdoor advertising or aerial photography for events

The company's aerostats are made of polyurethane coated polyester for low permeability and may be tethered with high resistance polyamide ropes.

Models

A-150 | A-250 | A-1000*

The family of aerostats is baptized over each model's volume. The company currently has aerostats of 150 m³ (5297.2 ft³) and 250 m³ (8828.7 ft³) and offers options of customization for clients for their use and payload requirements.

*Airship do Brasil has projects up to 1000 m³ (35314.7 ft³) in development.



A-150 Specification

- Length: 12,30 m (40.35 ft.)
- Height: 6,26 m (20.54 ft.)
- Diameter: 5,30 m (17.39 ft.)
- Volume: 150 m³ (5297.2 ft³)
- Empty weight: 60 kg (132.2 lbs)

Operational Features

- Operational wind speed: 33 knots
- Maximum acceptable wind speed: 40 knots
- Maximum height: 300 m (984.2 ft.)
- Electrical power: 2 kW
- Time of flight: 4 days
- Payload: 20 Kg (44.1 lbs)



A-250 Specification

- Length: 17,60 m (57.7 ft.)
- Height: 6,96 m (22.8 ft.)
- Diameter: 5,79 m (19 ft.)
- Volume: 250 m³ (8828.7 ft³)
- Empty weight: 300 kg (661.4 lbs)

Operational Features

- Operational wind speed: 40 knots
- Maximum acceptable wind speed: 60 knots
- Maximum height: 300 m (984.3 ft.)
- Electrical power: 2 kW
- Time of flight: 4 days
- Payload: 30 Kg (66.1 lbs)

Aerostat Launcher Vehicle – ALV

This vehicle consists on a mobile platform for processing the data collected by the aerostat. It contains a winch to tether the aerostat to and supplies electrical power to its systems through cable. The ALV has room for two people that can work on the systems control and data processing.



Features

- Width: 2,3 m (7.5 ft.)
- Length: 5 m (16.4 ft.)
- Height: 2,5 m (8.2 ft.)
- Electrical infrastructure: 30 kVA and 220 V
- Crew: up to 2 people
- IT infrastructure (wireless and cabled nets)
- Air-conditioning, microwave and minibar
- Illumination system for nighttime operation



Spheres

Spheres are a cost effective and efficient way to raise small amounts of payload to a required altitude, like cameras, receptors, VHF and UHF repeaters; and TV, radio or internet transmitters.

When designed in bigger sizes, they are capable of moving heavy and indivisible payload, up to tons of weight.

These tethered balloons are also great platforms for outdoor advertisement. The company manufactures custom sizes according to the client's payload and usage requirements.

Especificações técnicas

- Made of polyurethane coated polyester
- Available in custom sizes above 3,5 m (11.5 ft.) of diameter
- Also available with standard diameter of 5 m (16.4 ft.), which is able to lift around 30kg (66.14 lbs.)





Airships

The "lighter than air" technology is the basis for the development of the aircrafts called airships, because unlike aerodynamic aircrafts such as airplanes, which produce lift by their movement, aerostatic aircrafts (such as airships), stay aloft by filling a large cavity (envelope) with a lifting gas, which is, in this case, helium.

Airship do Brasil started its business with the manufacture of two unmanned models of Airship, baptized ADB-1 e ADB-2, but it has always established its main objective as the production of large cargo airships.

The first unit of the manned aircraft series is the ADB 3-3 model airship, with payload capacity of up to 1.2 tons, used mainly for pilot training, surveillance, inspections and marketing, as well as tests and research for the company's technology development.

The cargo airship series will be released with a project called ADB 3-30, which aims to carry large loads, with great cargo compartment inside volume, and, in the future, will be further extended by the raise of the models payload capacity.

Airships do not require previous infrastructure for take-off and landing and can be custom manufactured for extended flight ranges. Additionally, they present less fuel consumption for distance travelled when compared to traditional aircrafts.



ADB 3-3 Airship

This airship's envelope is a tensile structure manufactured in polyurethane coated polyester, which is a highly resistant fabric with low permeability, and has aluminum rudders and elevators. The crew and pax compartment, called gondola, is made of steel and composite materials.

Utilization

- Pilot and ground crew training by the Lighter than Air Aviation School (ESALTA), founded by Airship do Brasil
- Passenger transportation for tourism
- Scouting flights
- Small cargo transport for remote areas
- Surveillance and monitoring for security, environment protection, fire prevention, border control, etc. (equipped with cameras, radars, or spotlights)
- Electric energy transmission lines inspection
- Marketing and advertisement

Features

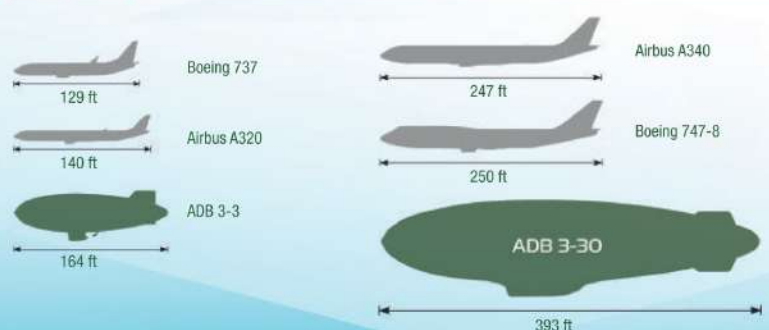
- Length: 49 m (160 ft.)
- Height: 17,3 m (56.8 ft.)
- Payload: 1.2 ton
- Lycoming IO-540-K2A5 propeller (300 HP)
- Top speed: 85 km/h (45.9 kts)
- Cruising speed: 40 km/h (21.6 kts)
- Minimum crew: 1 pilot
- Room for 5 passengers and 1 pilot

ADB 3-30 Airship



ADB 3-30 project, which is going to measure around 393 ft. of length.

Comparison



Company

Airship do Brasil (ADB) was established in 2005 and is headquartered in São Carlos, São Paulo. The region is characterized by a cluster geared towards the development of aeronautical technology in Brazil. The company has a team of aeronautical engineers with experience in the sector, specialized in the development and production of lighter than air equipment and aircraft. ADB also maintains partnerships and interchange technology programs with institutions from the United States, United Kingdom, Russia, China, Germany, France and Portugal.



H-1: hangar located on Washington Luís Highway, km 233, aimed at the development of Projects and Prototypes.

Special Hangar for Airships

ADB possesses a hangar developed specifically for its aircraft, which was named as H-2 and is about 20 meters high (65.62 ft), 20 meters in width (65.62 ft) and 60 meters in length (196.9 ft). These installations are built upon a metal frame covered in canvas fabric, which gives it special features such as agility in building time. This is an innovative concept in the field since this modular type of construction is easy to reallocate and has a high durability of 10 years.

Additionally, the H-2 is economical with illumination since the tarps alternate between opaque and translucent fabrics, allowing natural light in. It is a versatile type of installation, adaptable to other dimensions such as 45 meters in height (147.69 ft) by 50 meters of free width (164 ft). Its modularity allows it to be extended as necessary, as bigger aircraft are developed and produced.



Technology

To act over the lighter than air industry, Airship do Brasil has employed a specialized team with many years of experience in the sector, carrying out expressive research and development in national territory in all branches of the LTA sector: the study of fabrics and composite materials, perfecting transmission lines, developments for aerostatic equilibrium control, aerodynamics, stability, data processing and integration of on-board systems, conjunct technical analysis and strategic creation and adaptation of new products for the market. Additionally, the company prepares its specialized work force, training engineers, technicians and also offering training courses for ground crew, pilot and on-board crew through its Lighter Than Air Aviation School (ESALTA).