

## **Global Airships Atlas rigid airship**

Peter Lobner, 2 August 2019

### **Background**

Global Airships was established in 2019 in Sterling, MA to develop a heavy-lift, rigid cargo airship, known as the Atlas, intended to provide point-to-point cargo delivery with minimal infrastructure needed to support its operation. Global Airships is establishing a global team of subcontractors to support development and manufacturing of the Atlas airship.

In addition to its role as a heavy cargo carrier, the Atlas airship can be configured for several other types of missions, including:

- Supporting emergency relief efforts with supplies delivered directly to the stricken areas
- Flying hospital capable of treating the injured at the site of an emergency
- Ultra-long duration surveillance / search and rescue (SAR) missions, potentially lasting up to 10 days
- Launch and recovery of fixed- or rotary-wing aircraft, manned or drones

The Global Airships website is here: <https://www.globalairships.com>

### **The Atlas airship**



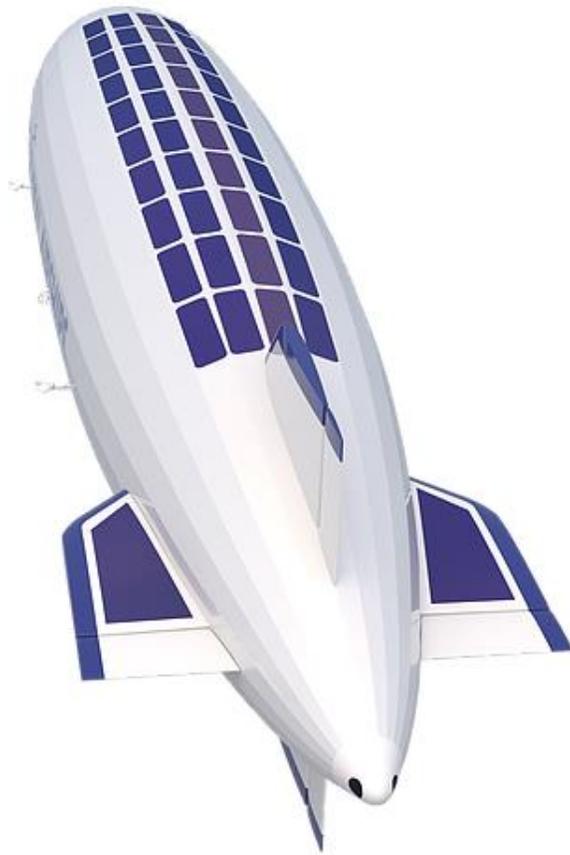
*Profile view of the Atlas airship. The ventral crew cabin located forward of the mid-ships cargo hold contains the forward-facing piloting station and the rear-facing crane operator station. Source: Global Airships*

Basic design characteristics of the Atlas airship are as follows:

- The Atlas is a very large, conventional rigid airship with a composite airframe.
- All lift is aerostatic.
- Length: 290 m (951 ft)
- Capable of vertical takeoff and landing (VTOL) and hovering with maximum load.
  - Atlas can service almost any site from the air, regardless of size.
- Maximum payload: 60 metric tons
- Large internal cargo bay is located under the gas envelope.
  - Supports roll-on, roll-off (Ro-Ro) cargo handling.
  - Can handle internal carriage of larger, indivisible loads.
  - Able to handle even larger cargo semi-enclosed in an aerodynamic fairing.
- Able to operate as a flying crane.
  - Can make a cargo pick-up or delivery from a hover while maintaining precise geo-positioning above the target site.
- Minimum ground infrastructure required.
- Cruise speed: 80 knots (148 kph, 92 mph)
- Maximum range: 2,400 km (1,500 miles)
- Propulsion: 6 x diesel engines directly driving 6 x thrust vectoring propulsors, 3 on each side of the hull
- Station-keeping: Bow and stern lateral thrusters and the 6 x thrust-vectoring propulsors coordinate to provide precise geo-positioning.
- Hybrid electric power system: hull-mounted solar panels, batteries and a diesel-generator
- Significantly cheaper than other aerial cargo services and can handle a wider range of goods.
- Very low vibration, noise and g-loads make the airship ideal for transporting fragile items.

### **Solar electric power system**

Hull-mounted solar panels provide a significant generating capacity on this very large airship and reduce the amount of fossil fuel used during a flight.



*Solar panel array on an Atlas airship.  
Source: Global Airships*

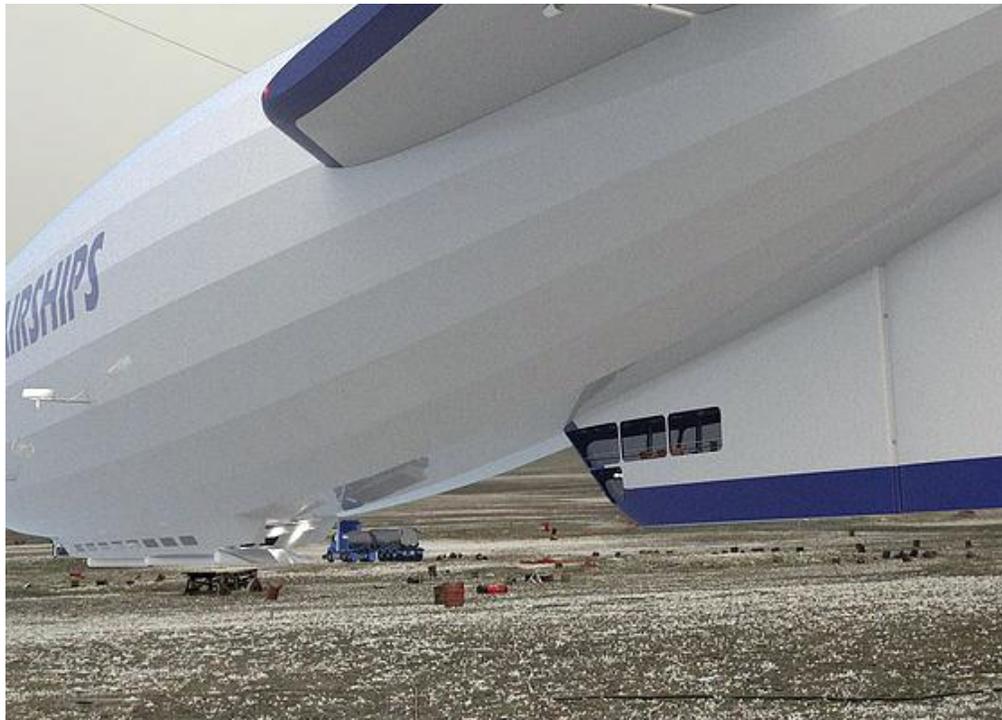
## **Load exchange**

Global Airships claims, “Using proprietary technology that ties together all of the airship's control systems, ATLAS is able to hover, lower a payload connector or platform and then hoist it into the payload bay with the loaded cargo. The payload is deployed from the cargo bay in the same fashion at the delivery point.” At this time, only the following details are known:

- The load exchange process for the Atlas airship does not depend on a ballast exchange.
- On the ground, the main propulsors can be vectored vertically to generate a “hold-down” thrust to compensate for the airship being temporarily light during some part of a load exchange.
- While Atlas can do Ro-Ro operations on the ground, the preference is for the airship to operate as a flying crane.

## Load exchange on the ground

The Atlas airship is capable of landing on almost any surface, including water. Access ramps at either end of the cargo bay enable Ro-Ro cargo handling. The standard configuration cargo door height of 4.5 meters (14.4 feet) can accommodate almost all road vehicles and all shipping containers. A proprietary system manages the buoyancy of the airship during the load exchange on the ground.



*Ro-Ro from rear and front cargo ramps. Source: Global Airships*



## Load exchange from a hover

Cargo items to be picked up or delivered from a hovering airship will be secured on a payload platform or, for larger items, a payload connector. The airship's cargo handling system engages the platform or connector to raise or lower the item for pickup or delivery. A proprietary system manages the precision geo-positioning and in-flight buoyancy of the airship during the load exchange.



*Examples of a payload platform (above) and a payload connector (below). Source: Global Airships*

