

# **Lindstrand Technologies - GA-42 & GA-22 small blimps**

Peter Lobner, 12 February 2022

## **1. Introduction**

Lindstrand Technologies and Lindstrand Asia offer two small nonrigid airships (blimps), the two-place GA-42 and the unmanned GA-22. Both of these small blimps are described in this article.

Lindstrand Asia provides the following description of blimp operation:

“Nonrigid airships use a pressure level in excess of the surrounding air pressure to retain their shape during flight. Unlike the rigid design, the non-rigid airship’s gas envelope has no compartmentation. At sea level, the ballonets (internal flexible cells) are filled with air. As altitude is increased, the lifting gas expands and air from the ballonets is expelled through air valves to maintain the same hull shape. To return to sea level, the process is reversed. Air is forced back into the ballonets using auxiliary blowers. An airship can be steered and propelled through the air using rudders and propellers or other thrust mechanisms.”

The Lindstrand Technologies website is here:

<https://www.lindstrandtech.com/what-we-do/military/airships/>

The Lindstrand Asia website is here

<http://www.lindstrand.asia/airships/helium-airships/>

## **2. GA-42 manned helium airship**

UK manufacturer Thunder & Colt (T&C) introduced the small GA-42 nonrigid helium airship in the 1980s with the intention of making airship operation affordable to a wider customer base. With two-place seating, the GA-42 can be used for airship pilot training. The GA-42 became the first blimp with electrical fly-by-wire flight controls with no mechanical back-ups (no mechanical connection between the side stick controller and the fin-mounted control surfaces) to receive an FAA type certificate (AS3EU).

T&C built nine GA-42 airships. After T&C was acquired by Cameron Balloons in 1995, the rights to the GA-42 blimp design and the type certificate were acquired in 2000 by the American Blimp Corporation (ABC). Subsequently, ABC gave Lindstrand Technologies the right to manufacture the GA-42.



*GA-42. Source: Leo via Flickr*



*GA-42. Source: Flickrriver*

## General characteristics of the GA-42

Parameter	GA-42
Length, overall	26 m (85.3 ft)
Envelope volume	1,189 m <sup>3</sup> (42,000 ft <sup>3</sup> )
Ballonet volume	26% of envelope
Engine	1 x Teledyne Continental O-200-B @ 100 shp (74.6 kW) max continuous
Weight, max	1,361 kg (3,000 lb)
Max static heaviness	100 kg (220 lb)
Accommodations	Pilot + 1
Speed, max	39 knots
Range	1,046 km (650 miles)

### 3. GA-22 unmanned helium airship

In 2004 Lindstrand Technologies supplied a 22-meter (72.2-ft) long unmanned airship to the Ministry of Defense in Spain for unspecified surveillance missions with a 42 kg (92.6 lb) payload. The airship flew regularly for several years. This radio-controlled airship design was developed further as the GA-22, which can carry a payload of up to 150 kg (330.7 lb) to an altitude of more than 1,981 m (6,500 feet).



GA-22. Source: Lindstrand Technologies (2021)



*GA-22 in flight. Source: Lindstrand Asia (2021)*

In July 2008, BAE Systems announced that the Lindstrand GA-22 would become the latest addition to BAE's growing portfolio of autonomous systems. Lindstrand would produce the airship and BAE would integrate their existing Unmanned Autonomous System to enable the airship to perform autonomous missions such as communications relay and surveillance.



*GA-22. Source: BAE Systems (2008)*

In 2008 Lindstrand conducted an indoor test inflation of a GA-22 at the UK firm Cammell Laird. The following photos show several anchor points on the envelope for attaching equipment such as the gondola, fins, nose ring, handling lines and pressure relief valves. The fins are attached to the envelope with a combination of straps, rigging lines and hook and loop fasteners.



*GA-22 inflation test. Source: Screenshot from Lindstrand Technologies video (2008)*



*GA-22 tail fins attached for inflation test. Source: Screenshot from Lindstrand Technologies video (2008)*

You can view the 2008 GA-22 inflation test at Cammell Laird at the following link:

<https://www.youtube.com/watch?v=ClfgXVk33Ug&t=112s>

#### 4. For more information

- “Lighter-than-Air Vehicles for Civilian and Military Applications,” Lindstrand Technologies: <https://www.lindstrandtech.com/wp-content/uploads/2016/04/Airships-Aerostats-Brochure.pdf>
- “BAE Systems and Lindstrand Technologies update the GA-22 Airship,” Airshipworld Blog, 23 July 2008: <http://airshipworld.blogspot.com/2008/07/bae-systems-and-lindstrand-technologies.html>
- “TYPE CERTIFICATE DATA SHEET NO. AS3EU” Revision 2, Model GA-42, 21 November 2000: [https://rgl.faa.gov/regulatory\\_and\\_guidance\\_library/rgMakeModel.nsf/0/6c9e5d3010da375386256b7d0051145d/\\$FILE/AS3EU.pdf](https://rgl.faa.gov/regulatory_and_guidance_library/rgMakeModel.nsf/0/6c9e5d3010da375386256b7d0051145d/$FILE/AS3EU.pdf)

#### Other *Modern Airships* articles

- *Modern Airships - Part 1*: <https://lynceans.org/all-posts/modern-airships-part-1/>
  - Thunder & Colt GA-42 small helium blimp
  - American Blimp Corp. - Lightships
- *Modern Airships - Part 2*: <https://lynceans.org/all-posts/modern-airships-part-2/>
- *Modern Airships - Part 3*: <https://lynceans.org/all-posts/modern-airships-part-3/>