

Aviation Industry Corporation of China (AVIC) – AS700 blimp

Peter Lobner, updated 8 March 2022



The Ministry of Industry and Information Technology established an airship project that resulted in the "Walk in the Cloud" (AS700) series of non-rigid manned airships developed by the China's largest aircraft manufacturer, Aviation Industry Corp. of China (AVIC). Work on the project started in August 2018 at the Special Aircraft Research Institute, an AVIC subsidiary in Jingmen, Hubei province. The AS700 airship is being developed to meet demand for domestic and international airships for low altitude sightseeing air tours. AVIC estimates that there is a market demand for 100 airships of this type over the next 10 years.



AVIC AS700 non-rigid airship.

Source: AVIC Special Vehicle Research Institute

The AS700 can be configured for other missions, such as geological exploration, aerial photography, marine surveillance, emergency rescue, and small cargo transport. It also can be configured as a luxury vehicle for corporate and other users.

First flight of the prototype AS700 is expected in the second half of 2021.

General characteristics of the AVIC AS700 blimp

Parameter	AVIC AS700
Airship type	Non-rigid
Length	48 m (158 ft), estimate *
Height	12 m (39 ft), estimate *
Lift gas	Helium
Envelope volume	3,500 m ³ (123,600 ft ³)
Propulsion system	Two Lycoming IO-390-C3B6 aviation piston engines @ 215 shp (160 kW) each, likely thrust vectoring. Installed near the rear of the gondola.
Payload	840 kg (1,852 lb)
Accommodations	1 Crew + up to 9 passengers
Speed, cruise	70 kph (43.5 mph)
Speed, maximum	100 kph (62.2 mph)
Rate of climb, max	7.5 m/s (25 fps)
Rate of descent, max	4 m/s (13 fps)
Max wind speed	20 m/s (67 fps, 44.7 mph)
Range	700 km (435 miles)
Endurance	10 hours

* Estimate based on similar volume American Blimp Corp A-130.

The AS700 has an ellipsoid hull, an "X" layout rigid tail with flight control surfaces, and a non-retractable single-point landing gear under the gondola. The AS700 envelope is a single lift gas cell with lightweight polymer ballonnet cells and a tear-resistant outer skin. It is equipped with helium safety valves to prevent over-pressurization and to allow for a safe landing in the event of maneuvering system failure.

The AS700 features a single-pilot control system with advanced avionics and a fly-by-wire side stick that make the blimp easy to operate.

The site for AS700 operations should be flat ground not less than 200 m (656 ft) in diameter or have an airstrip available.

The AS700 is not intended to fly under known conditions of thunderstorm, snow, heavy fog, and lightning.

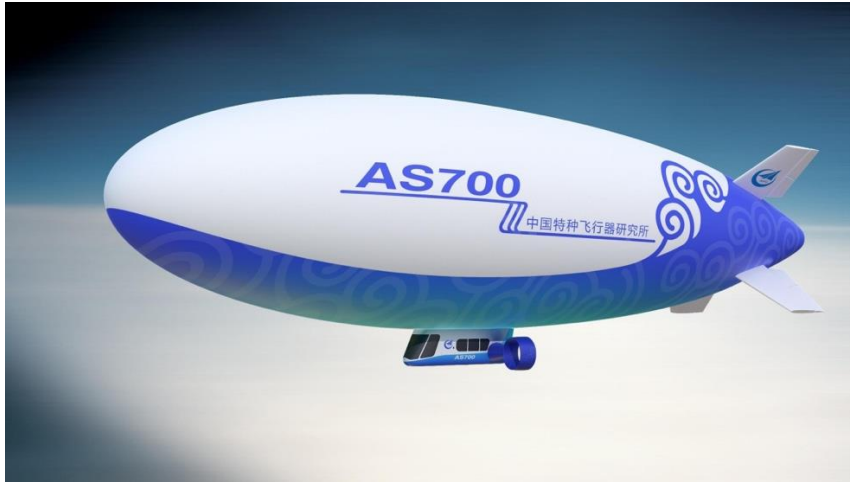


*Rendering of AVIC AS700.
Source: AVIC Special Vehicle Research Institute*

The gondola accommodates a single pilot and up to nine passengers. The large gondola windows open in flight.



*Details of the AVIC AS700 gondola.
Source: AVIC Special Vehicle Research Institute*



*Renderings of AVIC AS700.
Source: AVIC Special Vehicle Research Institute*



For more information

- “Air Tour Operation Development and Aircraft Selection Application Seminar and AS700 Manned Airship Application Scenario Appraisal Meeting,” DayDayNews, 2 December 2020: <https://daydaynews.cc/en/military/941384.html>
- Tao Mingyang, “Chinese home-made airship AS700 to take off within 2021: AVIC,” Global Times China, 4 March 2021: <https://www.globaltimes.cn/page/202103/1217281.shtml>
- Tom Kang, “China’s civil manned airship AS700 expected to make maiden flight this year,” CnTechPost, 4 March 2021: <https://cntechpost.com/2021/03/04/chinas-civil-manned-airship-as700-expected-to-make-maiden-flight-this-year/>

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