SkyLifter airship may one day carry buildings (w/ Video)

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SkyLifter with Global Nomad hotel module.

(PhysOrg.com) -- An Australian aeronautical company is developing a giant balloon that will one day be capable of carrying payloads more than seven times the maximum load carried by a heavy cargo helicopter. The inventors hope the balloons will be able to carry disaster relief centers and even modular hospitals into remote areas.

Unlike the traditional cigar, oval or spherical shape of airships and balloons, the SkyLifter balloon is a discus shape (150 meters (500 ft) in diameter and is driven by specially-designed propellers in a control pod suspended from the helium-filled aerostat balloon space. The company says the design makes it easy to steer in different wind conditions

because the shape is directionless.

The Voith-Schneider propellers resemble paddle wheels, but with hydrofoil-shaped blades. Increasing the rotation speed increases thrust, and adjusting the angle of the blades changes the direction of the thrust, so the propellers deliver power and steering simultaneously. There will also be a buoyancy control system inside the balloon to assist in moving the vehicle in the vertical axis.

Moonlight in the clouds

The “flying saucer” design eliminates the problems of downdraft and handling difficulties caused by the huge rotors of cargo helicopters. On descent the shape acts rather like a parachute, giving the pilot much greater control. The shape also enables it to carry fragile, bulky or heavy loads of up to 150 tonnes, and possibly more, for distances of around two thousand kilometers. Top speed is expected to be 45 knots (around 50 mph).

The airship could provide a solution to the problem of accessing remote disaster areas, which are often regions with poor roads and few, if any, airstrips or rail connections. Heavy cargo helicopters have limited payloads, which means equipment must often be dismantled and reassembled on site, wasting precious time, and their range is considerably less than the SkyLifter.

The SkyLifter is currently at prototype stage, and the company has already produced an 18 meter (60 ft) version, named Vikki, without an engine, and a fully-functional three meter prototype nicknamed Betty, which can carry a payload of 0.5 kg (around 1 lb). Prototypes 23 meters (Nikki) and 150 meters (Lucy) in diameter should be launched within the next three years.

In the more distant future a SkyPalace version may be considered for luxury air cruising, but the company is also brainstorming many other potential applications.

More information: SkyLifter skylifter.com.au/