

**Dimensions (prototype):**  
220 cm x 100 cm x 210 cm (l)x(w)x(h)

**Weight:** 6 kg  
**Wind Resistance:** 120 km/h (estimate)

**Energy Production:**  
Flexcell Sunpack 4,5 Watts.  
Akku-Pack 12V, Ni-MH 2300mAh

**Energy Consumption:**  
12V Ventilator, 113 m3/h, 200mA  
LED Interior Light

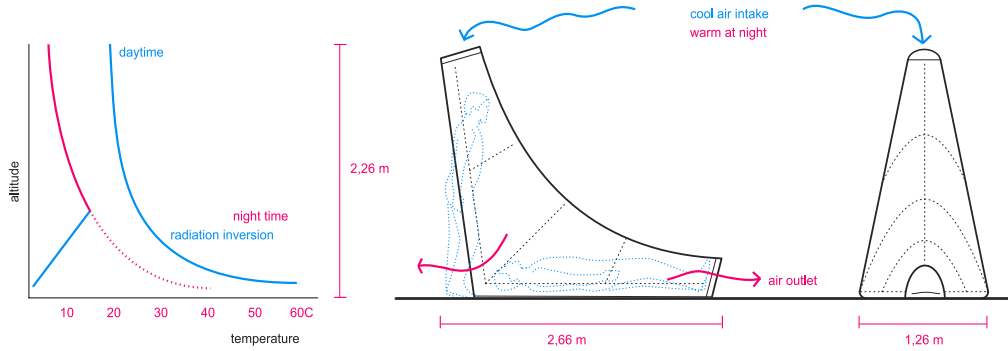
**Structure:**  
Fixed to the ground by hooks and tension ropes. A-shape vertical structure with air beams. Structure is supported by inner pressure against fluttering.

**Shape/form:**  
The anticlastic shape, which spans up between the two V-shaped air beams allows upright entry into the tent and is minimizing aerodynamic loads. Air intake is from the top.

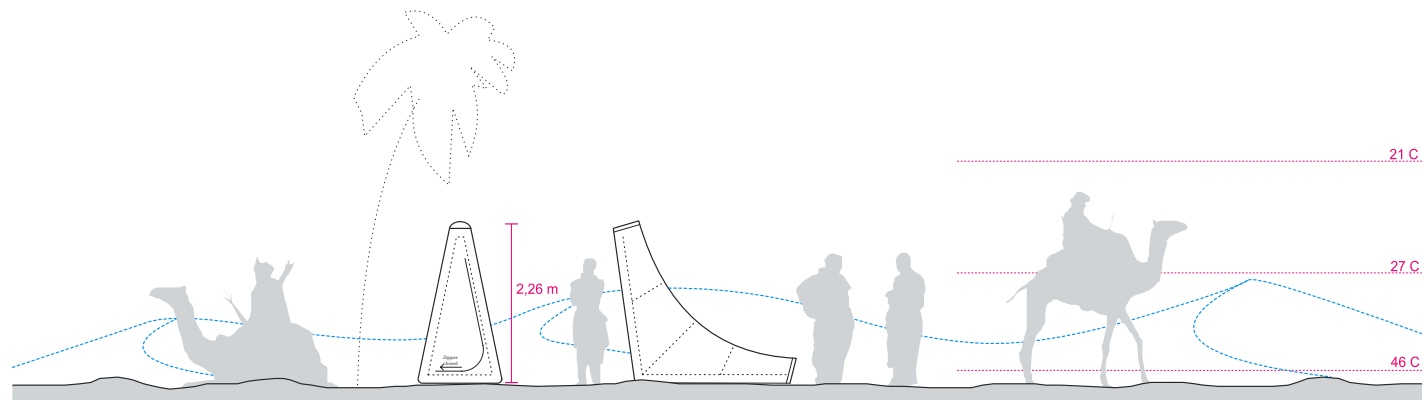
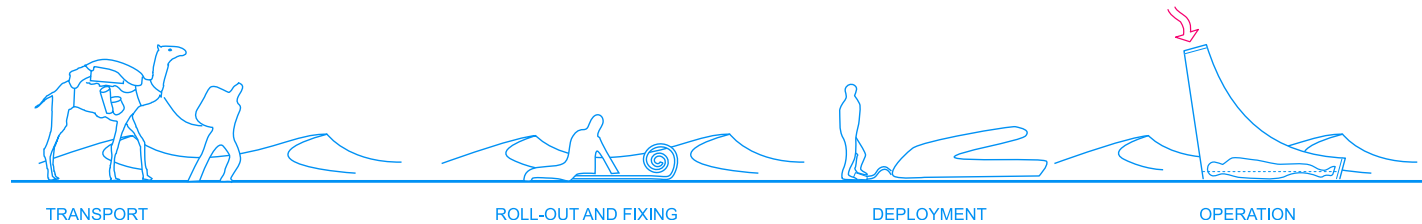
**Technologies:**  
The same technologies which are used in aerospace for parachute sewing and emergency inflatables have been employed.

**Cost estimation:** Prototype stage N/A

■ DIAGRAMS



■ TRANSPORT AND CONFIGURATION



**Space Technology Transfer Aspects:**

Desert Seal's 'down-to-earth' concept derives from currently discussed Space Exploration concepts. A small transportation volume, large deployment volume and a light-weight construction are crucial for all spacecraft. Inflatables have been anticipated from the very beginning of space flight and are considered for Human Habitats on Moon and Mars. The temperature extremes of Space are also found on Earth and the use of local energies (In-situ Resource Utilisation) for cooling and/or heating is reducing transportation mass. Human Spaceflight is relying on actively controlled environmental systems. The energy needed to drive the small electric fan is gained by a light-weight flexible Solar Panel, a technology also tested for spaceflight. Thermal control is one of the key points in designing space structures. Desert Seal exploits several concepts used in the space thermal control systems. The aluminised fabric used for the tent cover is very similar to the Multi Layer Insulation (MLI) used on most of space applications.

Desert Seal is an inflatable tent for extreme environments. It is making use of the specific temperature curve in hot arid regions, where the air is getting considerably cooler the more distant it is from the earth's surface. This effect is used by many desert animals, not least the camel. An electric fan is constantly blowing cooler air from the top into the tent. The fan is powered by a flexible solar panel and batteries.

The beauty of this structure derives from its functionality and efficiency, particularly dealing with such natural energies as sun and wind. The aerospace architecture background of the designers is visible in the conception, construction and materialisation of the project, using natural resources and minimum weight for transportability.

On exhibition at the MoMA New York:

**SAFE: Design Takes On Risk**

Sunday Oct 16, 2005 until Monday Jan 2, 2006  
www.moma.org – The Museum of Modern Art, New York City



**Design Team:**  
Andreas Vogler, Arturo Vittori

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ESA Technology Transfer Office, Noordwijk, Netherlands  
Museum of Modern Art, New York City, USA

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**ARCHITECTURE AND VISION**  
Company Profile

Architecture and Vision is an architecture and design practice established in 2003 by the Italian and Swiss architects Arturo Vittori and Andreas Vogler. The company is based in London and Munich and currently working on the design of a series of research projects. The scope of this work includes the design of buildings and space habitats, Aircraft interiors and product design, graphics and exhibitions. The key words to explain the philosophy of the practice are: innovation, functionality, efficiency, closed-loop-systems, context and complexity, beauty, new materials, experimentation and quality. The central concern of the practice is design excellence, achieved through collaboration with clients and specialists ranging from structural and environmental engineers to cost consultants. Research and development are areas of primary importance: a driving force.

**AERO SEKUR**  
Company Profile

Aero Sekur S.p.A., founded in 1968, is a company located at Aprilia (Latina), and is leader in the Research, Development & Manufacture of a broad range of Equipment & Device for the Aerospace, Safety, & Survival fields, continuously setting the standards for innovation, quality and reliability.

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**Architecture and Vision**

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