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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 43685-2024

**General technical requirements for cabin of inflatable
membrane structure and controlled environments**

充气膜结构舱室及受控环境通用技术要求

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Table of Contents

Foreword	i
1 Scope	
2 Normative references	
3 Terms and definitions	
4 Requirements	
5 Packaging, labeling, transportation and storage	
Annex A (Informative) Schematic diagram of cabin of inflatable membrane structure	
Annex B (Informative) Schematic diagram of the integration mode of cabin of inflatable membrane structure	
Annex C (Informative) Integration suggestions for common application scenarios	
Annex D (Informative) Schematic diagram for safe evacuation	
Annex E (Informative) Installation and removal process of cabin of inflatable membrane structure	
Bibliography	

Foreword

This document was issued on 15 March 2024 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 October 2024.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies.

The document runs to 19 pages in translation. The identification, the dates, the table of contents and the clauses reproduced on this page are taken from the standard itself.

General technical requirements for cabin of inflatable membrane structure and controlled environments

1 Scope

GB/T 43685-2024 sets the general technical requirements for inflatable membrane structure cabins and the controlled environments inside them. These are the structures that go up in hours rather than weeks, the emergency field hospitals, isolation wards, laboratories and shelters whose whole value is that air pressure alone holds them up and that they can be flown in and inflated on site. The document defines the membrane material and the air-rib construction, the basic operating pressure, the hot sealing of the membrane

sheets and the rest of the vocabulary the trade uses, and then sets the requirements on the cabin body, on the doors and the airlock, on the blower and pressure control, on the temperature, humidity, filtration and cleanliness of the controlled environment inside, on electrical safety and fire behaviour, and on the packaging, labelling, transport and storage of the product, which for equipment held in reserve for years matters as much as the structure. It takes effect on 1 October 2024.

This document sets out the general technical requirements for cabin of inflatable membrane structure and controlled environments and the requirements for packaging, labeling, transportation and storage of products. This document is suitable for emergency applications in cabin of inflatable membrane structure and controlled environments where air is used as a support system.

2 Normative references

The following documents contain requirements which, through reference in this text, constitute provisions of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB 2894 Safety signs and guideline for the use

GB/T 7725 Room air conditioner

GB/T 19411 Dehumidifier

GB/T 30161 Coated fabrics for membrane structures

GB 50009 Load code for the design of building structures

GB 50073 Code for design of clean room

GB 50243 Code of acceptance for construction quality of ventilation and air conditioning works

GB 50346 Architectural and technical code for biosafety laboratories

GB 51039 Code for design of general hospital

GB 55037 General specification for building fire protection

JB/T 7258 Centrifugal blower for general purpose

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

membrane material

air-tight composite composed of high-strength substrates and coatings

3.2

cabin of inflatable membrane structure

inflatable membrane material used as the main body of the structure to form a closed space with a certain stable shape and bearing capacity

3.3

air-rib

structure formed inside the enclosed membrane material where the pressurized gas acts on

Note: Its shape is usually tubular.

3.4

membrane sheet

cut-out piece of membrane material

3.5

hot sealing

connection method for crimping the lap parts of adjacent diaphragms together by heating and melting the surface coating of the film material or the film material itself

3.6

basic operation pressure

internal and external pressure difference during the initial shape design (shape-finding or force-finding) of the inflatable membrane structure

4 Requirements

4.1 General

A cabin of inflatable membrane structure is composed of the cabin body, the controlled environment in the cabin and its control equipment. Schematic diagram is shown in Annex A. The cabin body is composed of air-ribs, diaphragm doors and inflating equipment; the cabin controlled environment and its control equipment are composed of a main cabin, a buffer room, a ventilation system and an air conditioning system. When in use, it can be used independently by a single cabin, or integrated by multiple cabins.