

BS ISO 10785:2011



BSI Standards Publication

Space systems — Bellows — Design and operation

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National foreword

This British Standard is the UK implementation of ISO 10785:2011.

The UK participation in its preparation was entrusted to Technical Committee ACE/68/-/1, Space systems and operations - Design, Engineering and Production.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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ISBN 978 0 580 66620 9

ICS 49.140

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 October 2011.

Amendments issued since publication

Date	Text affected
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INTERNATIONAL STANDARD

BS ISO 10785:2011
ISO
10785

First edition
2011-10-01

Space systems — Bellows — Design and operation

Systèmes spatiaux — Souffleries — Conception et fonctionnement



Reference number
ISO 10785:2011(E)
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Published in Switzerland

Contents		Page
Foreword		iv
Introduction		v
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Abbreviated terms	5
5	Requirements	5
5.1	General	5
5.2	Design requirements	6
5.3	Material requirements	8
5.4	Fabrication and process control requirements	9
5.5	Quality assurance requirements	9
5.6	Operation and maintenance requirements	10
5.7	Specific qualification test requirements	12
Annex A (informative) Design safety factors		14

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 10785 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 14, *Space systems and operations*.

Introduction

The bellows for space systems is usually used under severe conditions, such as high pressure, extremely low temperatures, large deflection, or high inner flow speed. The design safety factor of the bellows tends to be small in order to satisfy two different function requirements simultaneously. One is the function of the pressure bearing component, which all pressure components have, and the other is the special function to accommodate installation misalignment, thermal expansion or contraction and displacement induced by large deformation of the pressurized propellant tank.

There are many items to be considered for design and manufacture such as hoop stress, bulging stress, buckling strength, flow-induced vibration, and cyclic deflection.

This International Standard establishes general and specific requirements for bellows in order to provide safe and reliable bellows hardware and operations.

Some examples of the design safety factors are shown in Annex A at the end of this International Standard.

