

# SVENSK STANDARD

## SS-ISO 14186:2014



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**Utrustning för flygfrakt – Brandkapsling – Prestanda- och utförandekrav samt provningsmetoder (ISO 14186:2013, IDT)**

**Air cargo – Fire containment covers – Design, performance and testing requirements (ISO 14186:2013, IDT)**

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The International Standard ISO 14186:2013 has the status of a Swedish Standard. This document contains the official version of ISO 14186:2013.

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## 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. [www.iso.org/directives](http://www.iso.org/directives)

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received. [www.iso.org/patents](http://www.iso.org/patents)

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The committee responsible for this document is ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 9, *Air cargo and ground equipment*.

## **Introduction**

This International Standard specifies the design and performance criteria and testing methods applicable to fire containment covers intended to be used in conjunction with air cargo unit load devices in order to meet through oxygen depletion the fire containment regulations in certain civil transport aircraft cargo compartments.

Throughout this International Standard, the minimum essential criteria are identified by use of the key word “shall”. Recommended criteria are identified by use of the key word “should” and, while not mandatory, are considered to be of primary importance in providing fire containment covers meeting the applicable regulatory requirements and ensuring effective protection against fires. Deviation from recommended criteria should only occur after careful consideration, extensive testing, and thorough service evaluation have shown alternate methods to be satisfactory.

The requirements of this International Standard are expressed in the applicable SI units, with approximate inch-pound units conversion between brackets for convenience in those countries using that system. Where it is deemed necessary to use exact values, the SI unit ones are to be used.





# Air cargo — Fire containment covers — Design, performance and testing requirements

## 1 Scope

**1.1** This International Standard specifies the minimum design and performance criteria and testing methods of fire containment covers (FCCs) used:

- a) either in those cargo compartments of civil transport aircraft where they constitute one means of complying with applicable airworthiness regulations,
- b) or on a voluntary basis, when deemed appropriate by operators to improve fire protection in aircraft cargo compartments where airworthiness regulations do not mandate their use.

**1.2** The FCCs specified by this International Standard are intended to be used to cover unitized cargo contained/restrained in an air cargo pallet and net assembly, for loading into aircraft main deck cargo compartments:

- a) either class F aircraft cargo compartments according to CS-25 § 25.857(f) and AMC to CS-25.855 and 25.857, in accordance with 1.1 a) above,
- b) or class B aircraft cargo compartments according to CS-25, CCAR-25, JAS Part 3 or 14 CFR Part 25 § 25.857 (b), in accordance with 1.1 a) or 1.1 b) above,
- c) or class E aircraft cargo compartments according to CS-25, CCAR-25, JAS Part 3 or 14 CFR Part 25 § 25.857 (e), in accordance with 1.1 b) above.

**NOTE** Though nothing prevents an FCC from being carried in a lower deck class C aircraft cargo compartment, it is not intended for this use since its fire containment capability would be redundant with that of the aircraft's fire detection and suppression system, which it could hamper.

**1.3** The FCCs specified by this International Standard may be of two types:

- a) type I: separate devices to be installed over a pallet's load below a net approved for this purpose; or
- b) type II: devices permanently attached to a pallet net approved for this purpose.

**1.4** The unit load devices (pallet and net) used in conjunction with the fire containment cover are specified in this International Standard only insofar as their flammability requirements are concerned. They are not otherwise specified in this International Standard.

**NOTE** See Bibliography for applicable ULD airworthiness approval and general design standards.

**1.5** This International Standard is not intended to cover fire containment of loose baggage or loose cargo loaded in bulk cargo compartments.

**1.6** This International Standard does not cover requirements for fire detection or suppression devices. The specified FCCs are passive devices.

**1.7** The use of fire containment covers meeting the requirements of this International Standard is not sufficient alone to ensure flight safety: this International Standard is based on the assumption that the approved fire containment covers will be installed and checked prior to aircraft loading in accordance with appropriate operating instructions, by competent, suitably trained personnel as defined, for example, in ISO 9001:2008<sup>[9]</sup>, 6.2.2 (see [9.3](#) hereafter).

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4892-1, *Plastics — Methods of exposure to laboratory light sources — Part 1: General guidance*

ISO 4892-3, *Plastics — Methods of exposure to laboratory light sources — Part 3: Fluorescent UV lamps*

ISO 7137, *Aircraft — Environmental conditions and test procedures for airborne equipment*<sup>1)</sup>

ISO 7166, *Aircraft — Rail and stud configuration for passenger equipment and cargo restraint*

ISO 10046, *Aircraft — Methodology of calculating cargo compartment volumes*

ISO 10254, *Air cargo and ground equipment — Vocabulary*

ISO 12236, *Geosynthetics — Static puncture test (CBR test)*

CAAC CCAR-25, *Airworthiness Standards – Transport Category Airplanes*<sup>2)</sup>

CAAC Chinese Technical Standard Order CTSO C90d, *Cargo pallets, nets and containers*

EASA CS-25, *Certification Specifications for Large Aeroplanes*<sup>2)3)</sup>

EASA Acceptable Means of Compliance (AMC) to CS-25.855/25.857, *Cargo or baggage compartments*<sup>3)</sup>

EASA Technical Standard Order ETSO C90d, *Cargo pallets, nets and containers (Unit Load Devices)*<sup>3)</sup>

Japanese Airworthiness Standard Part 3 (Civil Aeronautics Law Article 10 § 4)<sup>2) 4)</sup>

U.S.A. Code of Federal Regulations (CFR) Title 14 Part 25 – *Airworthiness Standards : Transport Category Airplanes* (“14 CFR Part 25”)<sup>2) 5)</sup>

U.S. FAA Technical Standard Order TSO C90d, *Cargo pallets, nets and containers (Unit Load Devices)*<sup>5)</sup>

NOTE Also see ULD (TSO/ETSO) airworthiness approval standards under references<sup>[7]</sup> and<sup>[12]</sup> in Bibliography.

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 10254 and the following apply.

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1) ISO 7137 is the de facto recognition of the latest revisions of EUROCAE ED-14 and RTCA DO-160 with the same title. EUROCAE ED-14G can be obtained from the European Organization for Civil Aviation Equipment, 102 rue Etienne Dolet, 92240 Malakoff, France, or its website at [www.eurocae.eu](http://www.eurocae.eu). RTCA DO-160G can be obtained from RTCA Inc, 1828 L Street, NW, Suite 805, Washington, DC 20036, USA, or through its website at [www.rtca.org](http://www.rtca.org).

2) See paragraphs 25.855, 25.857 and Appendix F.

3) EASA CS-25, abbreviated throughout this standard as “CS-25”, constitutes the European governments’ transport aircraft airworthiness approval Regulations. It can be obtained from the European Aviation Safety Agency (EASA), Otto Platz 1, Postfach 101253, D-50452 Cologne, Germany, or its website at [www.easa.europa.eu](http://www.easa.europa.eu)

4) The Japanese Airworthiness Standard Part 3 (ISBN 4-89279-661-1) constitutes the Japanese government transport aircraft airworthiness approval Regulations, and can be obtained from the Civil Aviation Bureau (CAB) of the Ministry of Land, Infrastructure, Tourism and Transport, Tokyo, Japan, or its website at [www.mlit.go.jp/en](http://www.mlit.go.jp/en)

5) Code of Federal Regulations (CFR) Title 14 Part 25, abbreviated throughout this standard as “14 CFR Part 25”, constitutes the USA government transport aircraft airworthiness approval Regulations, and can be obtained from the US. Government Printing Office, Mail Stop SSOP, Washington DC 20402-9328, USA, or its website at [www.ecfr.gov](http://www.ecfr.gov)

**3.1**  
**fire containment**  
**fire control**

ensuring that a fire does not grow to a state where damage to the aeroplane or harm to passengers or crew occurs during the time for which the fire containment system is demonstrated to be effective

**3.2**  
**fire containment cover**  
**FCC**

passive device used in conjunction with an air cargo pallet and net in order to contain a possible cargo fire beneath it for a rated period

Note 1 to entry: Guidance addressing the use of FCCs is provided in airworthiness regulatory guidance as one allowable means of compliance with fire containment requirements in certain classes of aircraft cargo compartment.

**3.3**  
**active fire protection unit load device**

unit load device incorporating built-in fire detection and/or fire extinguishing systems

**3.4**  
**passive unit load device**

unit load device or accessory thereto (e.g. FCC) that includes neither fire detection nor fire extinguishing systems, and ensures fire containment by its use of fire-resistant or fire-proof material and limiting the supply of air

**3.5**  
**unit load device**  
**ULD**

device for grouping, transferring and restraining cargo for transit

Note 1 to entry: It may consist of a pallet with a net or it may be a container.

**3.6**  
**class A fire**

fire in ordinary combustible materials, such as wood, cloth, paper, rubber, and plastics for which the quenching and cooling effects of quantities of water, or of solutions containing a large percentage of water, are of prime importance

**3.7**  
**fire resistant**

grade designating components, equipment and structures capable of withstanding application of heat by a defined flame for 5 min

Note 1 to entry: See ISO 2685 and EUROCAE ED-14G [ISO 7137] sect. 26.

Note 2 to entry: Compare with fire proof (3.8).

**3.8**  
**fire proof**

grade designating components, equipment and structures capable of withstanding the application of heat by a defined flame for 15 min

Note 1 to entry: See ISO 2685 and EUROCAE ED-14G [ISO 7137] sect. 26.

Note 2 to entry: Compare with fire resistant (3.7).

**3.9**  
**burn length**

distance from the original edge to the farthest evidence of damage on a test specimen due to flame impingement, including areas of partial or complete consumption, charring or embrittlement, but not including areas sooted, stained, warped, or discoloured, nor areas where material has shrunk or melted away from the heat source