SLOVENSKI STANDARD
SIST EN 4727:2015

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Aeronavtika - Standardizirani podatki o masi potniških sedežev

Aerospace series - Standardized passenger seat weigt information

Luft- und Raumfahrt - Standardisierte Sitzgewichtangaben für Passagiersitze

Série aérospatiale - Définition standardisée du poids d'un siège passager

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Aerospace series - Standardized passenger seat weight information

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This European Standard was approved by CEN on 10 January 2015.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

European foreword

This document (EN 4727:2015) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2016, and conflicting national standards shall be withdrawn at the latest by January 2016.

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1 Scope

The weight for cabin equipment is an important topic in the aviation business. The cabin equipment weight has a direct impact on the payload of the aircraft, operation cost and revenue of the airlines. Due to the number of aircraft seats, seats are one of the major weight drivers in the cabin. At this time a lot of seat weights are used without any clear definition, e.g. allowable max. weight, certified weight, defined weight. For the definition of each customer specific cabin definition it is important to get comparable seat weights. Aircraft seats are very different with regard to seat envelope dimensions and integrated features and options. For a weight calculation and product comparison it is very helpful to get comparable weight information based on a standard weight.

The aim of this European Standard is to define a clear definition for the different weight information and a baseline for a seat weight calculation to get comparable seat weights for set brochures and marketing reasons.

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.

CS-25/Amendment 5, 5 September 2008, *Certification Specification for Large Aeroplances* [1)]

3 Abbreviations

For the purposes of this document, the following abbreviations apply.

A/C	Aircraft
B/C	Business class
E/C	Economy class
F/C	First class
FAI	First article inspection
IAT	in-armrest table
IFE	Inflight-entertainment
IIL	Installation Instructions and Limitations
OEMs	original equipment manufacturer
PCU	Power control unit
P/N	Part number
SEB	Seat electronic box
Std.	Standard

1) Published by: European Aviation Safety Agency (EASA), Postfach 101253, D-50452 Koeln, Germany.

4 Requirements

4.1 General

Aircraft seats are highly customized and the final seat weight always depends on the specific customer requests.

In order to get a clear weight definition and to cover all needs of the OEMs, airlines and seat suppliers, following seat weights needs to be clearly defined:

a) Calculated seat weight;

b) Actual seat weight empty;

c) Maximum actual seat weight loaded;

d) Maximum certified seat weight;

e) Defined seat weight.

4.2 Calculated seat weight

4.2.1 Economy class (E/C) seats

The calculated seat weight is a theoretical seat weight, calculated based on a pre-defined seat definition. The calculated seat weight shall be used for marketing reasons in seat catalogues and seat brochures. The calculated weight according to this document ensures the availability of comparable weight information for the seat models offered on the market.

The calculated seat weight shall be calculated for a Std. triple and front row triple seat with a seat width of 62 in (1 575 mm) measured from the most inboard to the most outboard point and installed on 2 straight seat legs.

Following parts need to be considered:

a) Primary structure:

1) 2 seat legs, including 2 front and 2 rear fittings;
2) Base members / seat track covers between front and rear fittings;
3) Baggage bar under all 3 seat places;
4) Beams (front and rear if 2 beams);
5) Seat spreaders;
6) Seat pans;
7) Seat belt attachments.

b) Secondary structure:

1) 1 Fixed armrest structure outboard;

2) 2 Armrest structures for foldable centre armrest (For front row seats 2 fixed armrests with integrated in-armrest tables);

3) 1 Armrest structure for a foldable armrest aisle side for handicapped people (For front row seats 1 fixed armrest with integrated in-armrest table);

4) 3 Backrest structures;

5) 3 Recline mechanisms (if a seat is offered with no recline it needs to be indicated);

6) 1 Aisle side stewardess step;

7) All smaller structure items needed, e.g. gap closures.

c) Seat cushion assemblies:

Std. as offered by the seat supplier including fire blocking layer if needed.

d) Backrest cushion assemblies:

Std. as offered by the seat supplier including fire blocking layer if needed.

e) Seat belts:

3 Std. seat belts, weight: 315 g / seat belt.

f) Backrest tables:

3 standard backrest table kits this includes the table itself, table latch and any optional functions e.g. sliding mechanism and each related means of attachment to seat structure (if a seat table is offered with no sliding mechanism it shall be indicated).

g) Literature pockets:

1 on each backrest, minimum size DIN A4. Detailed design up to seat supplier.

h) Life vest pockets:

3 Life vest pockets, 1 under each armrest, designed for a life vest size of 240 mm × 240 mm × 90 mm and a weight of 600 g / life vest.

i) Trim and finish:

1) Seat cover fabric, uni colour / no pattern: 750 g/m^2;

2) All plastic fairings for armrests need to be included;

3) Trolley guard strip (rub strips) on aisle side;

4) Armrest covers;

5) Backrest fairings.

j) Trim strips (e.g. edge protection tape, velcro strips, …)

All non-metallic components and materials shall fulfil the criteria of CS 25:09-2008.

The weight impact of any offered option like ashtrays, cup holders, coat hooks, leg or footrest, floatation cushions, IFE or IFE provisions (like shroud or swivel mechanism, etc.) shall be indicated in a separate table.

IFE shall be considered with following baseline definition:

k) IFE;

l) 1 SEB;

m) 3 PCUs;

n) Needed in-seat cables.

As the specific weight of IFE equipment is varying, following classification in Table 1 shall be used for total IFE weight / seat row:

Table 1 — Classification for total IFE weight / seat row

Classification	Total IFE weight / seat row
Class A	≤ 500 g
Class B	501 g to 1 000 g
Class C	1 001 g to 1 500 g
Class D	1 501 g to 2 000 g
Class E	> 2 000 g

4.2.2 First class (F/C) and Business class (B/C) seats

F/C and B/C seat concepts are very different and often highly customized. The definition of the calculated seat weight is up to the seat supplier. The weight information shall be based on the same fabric, seat belt and life vest information as defined for the economy class seat. The rest of the detailed design is up to the seat supplier, but a clear list of considered features and options including IFE and monitor size is to be provided by the seat supplier with the calculated seat weight.

4.3 Actual seat weight empty

The actual seat weight empty is the weight of each seat part number (P/N) (single, double, triple quadruple) as designed according to the specific customer request including customer specific trim and finish and all accessories. e.g. IFE, seat actuation, reading lights etc. In general for a detailed weight list the component break down as listed in 4.2 can be used. Consider the seat as ready for aircraft installation. The weight will be finally checked during first article inspection (FAI). The seat unit will be weighed empty as delivered to the OEM fully equipped with seat belts, cushions, dress covers, IFE but without any life vest and other weight of contents for any stowage compartments or literature pockets. The actual weight empty needs to be shown in the seat delivery documentation like drawings and weight reports.

4.4 Maximum actual seat weight loaded

The maximum actual seat weight loaded is the actual seat weight empty as defined in 4.3 plus.

a) Maximum weight for content of literature pockets (Magazines);

b) Maximum weight for life vests;

c) Maximum weight for content of other stowage compartment.

The maximum actual seat weight loaded shall be mentioned in addition to the actual seat weight empty on the seat supplier drawings.

4.5 Certified seat weight

The certified seat weight is the maximum actual seat weight loaded as defined in 4.4 plus.

a) Weight for under-seat baggage of 9,1 kg (20 lb) per seat place;

b) Weight for passengers 77,0 kg (170 lb) per seat place;

c) Additional weight for any item of mass in order to cover any additional seat option with the seat certification;