SLOVENSKI STANDARD
SIST EN 4727:2017

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Nadomešča:
SIST EN 4727:2015

Aeronavtika - Standardizirani podatki o masi potniških sedežev

Aerospace series - Standardized passenger seat weight information

Luft- und Raumfahrt - Standardisierte Sitzgewichtangaben für Passagiersitze

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

Ta slovenski standard je istoveten z: EN 4727:2017

ICS:

49.095	Oprema za potnike in oprema kabin	Passenger and cabin equipment

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Aerospace series - Standardized passenger seat weight information

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This European Standard was approved by CEN on 16 October 2016.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (EN 4727:2017) 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 European 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of an identical text or by endorsement, at the latest by November 2017, and conflicting national standards shall be withdrawn at the latest by November 2017.

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This document supersedes EN 4727:2015.

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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, 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 seat 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, *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 need to be clearly defined:

a) Catalogue seat weight;

b) Estimated seat weight;

c) Calculated seat weight;

d) Actual seat weight empty;

e) Maximum seat weight loaded;

f) Maximum certified seat weight;

g) Defined seat weight.

4.2 Catalogue seat weight

4.2.1 Economy class (E/C) seats

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

The catalogue seat weight shall be evaluated 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 two (2) straight seat legs.

Following parts need to be considered:

a) Primary structure:

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

b) Secondary structure:

   1) One (1) fixed armrest structure outboard;

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

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

   4) Three (3) backrest structures;

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

   6) One (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:

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

f) Backrest tables:

   Three (3) standard backrest table kits including 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 only with no sliding mechanism it shall be indicated).

g) Literature pockets:

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

h) Life vest pockets:

   Three (3) life vest pockets, one (1) under each seatplace, 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, hook and loop tapes, …).

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

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 the following baseline definition:

a) IFE monitor (if in-seat video is offered);

b) One (1) SEB;

c) Three (3) PCUs;

d) Needed in-seat cables.

As the specific weight of IFE equipment is varying, the following classification in Table 1 shall be used for total IFE weight per triple seat as defined in this paragraph:

Table 1 — Classification for total IFE weight per pax

Classification	Total IFE weight per pax
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 Estimated seat weight

The estimated seat weight is the estimated seat weight empty for each seat part number (P/N) (single, double, triple, quadruple) as estimated during the pre-design phase according to the specific customer request including customer specific trim and finish and all accessories, e.g. IFE, seat actuation, reading lights, seat belts etc. (but without any life vests). In general, for a detailed weight list the component break down as listed in 4.2 can be used. The estimated weight is based on estimated weight of single parts and estimations on previous designs.

4.4 Calculated seat weight

The calculated seat weight is the calculated seat weight empty for each seat part number (P/N) (single, double, triple, quadruple) as calculated based on drawings/models released for manufacturing during the design phase according to the specific customer request including customer specific trim and finish and all accessories, e.g. IFE, seat actuation, reading lights, seat belts etc. (but without any life vests). In general, for a detailed weight list the component break down as listed in 4.2 can be used. The calculated seat weight is based on the weight of the single parts.