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Aircraft — Tow bar attachment fittings interface requirements —

Part 2: Regional aircraft

Aéronefs — Exigences d'interface des ferrures d'attache de barre de tractage —

Partie 2: Aéronefs régionaux

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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 (see 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 (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

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

This third edition cancels and replaces the second edition (ISO 8267-2:2015), which has been technically revised with the following change:

- the normative references have been updated.

A list of all parts in the ISO 8267 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The aim of this document is to standardize regional aircraft tow bar attachment fittings according to aircraft mass category (which determines tow bar forces), so that one tow bar can be used for all aircraft within that mass category.

Throughout this document, the minimum essential criteria are identified by the use of the key-word "shall". Recommended criteria are identified by the use of the key-word "should" and, while not mandatory, are considered to be of primary importance in providing safe aircraft towing arrangements. Deviation from recommended criteria should only occur after careful consideration, extensive testing, and thorough service evaluation have shown alternative methods to be satisfactory.

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Aircraft — Tow bar attachment fittings interface requirements —

Part 2: Regional aircraft

1 Scope

This document specifies the interface requirements for tow bar attachment fittings on the nose gear (when towing operations are performed from the nose gear) of conventional tricycle type landing gears of commercial civil transport aircraft.

Its purpose is to achieve tow bar attachment fittings interface standardization by aircraft mass category (which determines tow bar forces) in order to ensure that a single type of tow bar with a standard connection can be used for all aircraft types within or near that mass category, so as to assist operators and airport handling companies in reducing the number of different tow bar types used.

This document is applicable to all new models of regional aircraft within the specified maximum ramp mass range which enter service or are designed after its date of publication.

It does not apply to previously in service regional aircraft models, which present a considerable variety of tow bar attachment fittings. However, a simple retrofit modification is described that may make certain in-service fittings compatible with a tow bar head in conformity with this document, where deemed appropriate in order to facilitate operation of such aircraft types at airports.

This document is applicable to regional commercial transport aircraft airworthiness certified under FAR/EASA-CS Parts 25 with a maximum ramp mass of $\leq 50\,000$ kg (110,000 lb). It does not apply to

- aircraft airworthiness certified under FAR/EASA-CS Parts 23 as commuter category aeroplanes, and
- aircraft airworthiness certified under FAR/EASA-CS Parts 25 but with a maximum ramp mass of $> 50\,000$ kg (110,000 lb), which are covered by ISO 8267-1.

Where a family of existing or contemplated aircraft types bridges two mass categories, use a single tow bar attachment fitting interface for all of them, and consider the use of the standard dimensions for the higher mass category, be it part of this document or ISO 8267-1, throughout the family.

NOTE As far as practical, this document was defined in order to be compatible with as many existing aircraft types as possible in the mass category concerned.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1**main line aircraft**

civil passenger and/or freight transport aircraft with a *maximum ramp mass* (3.3) of > 50 000 kg (110,000 lb)

3.2**regional aircraft**

civil passenger and/or freight transport aircraft with a *maximum ramp mass* (3.3) of > 10 000 kg (22,000 lb) and ≤ 50 000 kg (110,000 lb)

3.3**maximum ramp mass****MRW**

maximum mass allowable for an aircraft type when leaving its parking position either under its own power or towed, comprising maximum structural take-off mass (MTOW) and taxiing fuel allowance

4 Requirements

4.1 Fitting location

The fitting shall be designed to enable simple attachment of the tow bar at the front of the aircraft nose landing gear for push/pull towing operations. No fitting is required at the rear of the nose landing gear.

An axle fitting may be used in the event of two-wheel nose landing gear. This is acceptable provided the towing loads do not exceed those specified in this document and the aircraft is designed accordingly.

4.2 Towing loads

It is presupposed that the aircraft nose landing gear tow bar attachment fitting is able to withstand the limit towing loads prescribed in applicable regulations, such as FAR/EASA-CS 25, paragraphs 25.509 (a), (c) and (d), based on the following towing load F_{TOW} (N):

- $F_{TOW} = 0,30 M_r \times g$ (where M_r is the design maximum ramp mass of the aircraft and g is the mean acceleration due to gravity), when $M_r \leq 13\,600$ kg (30,000 lb);
- $F_{TOW} = \frac{6M_r + 204\,100}{70} \times g$, when $13\,600$ kg (30,000 lb) < $M_r \leq 45\,360$ kg (100,000 lb);
- $F_{TOW} = 0,15 M_r \times g$, when $M_r > 45\,360$ kg (100,000 lb).

4.3 Aircraft mass categories

See [Table 1](#).

Table 1 — Aircraft mass categories

Masses in kilograms (Values in pounds in parentheses)

Category	Maximum ramp mass M_r
I	10 000 (22,000) < $M_r \leq 22\,680$ (50,000)
II	13 600 (30,000) < $M_r \leq 50\,000$ (110,000)

The tow bar attachment fitting category shall be selected in such a way that no change of type will become necessary during aircraft development. Aircraft of a design which is near the upper limit of a mass category may be classified in the next higher category to allow for mass growth (see [Clause 1](#)).

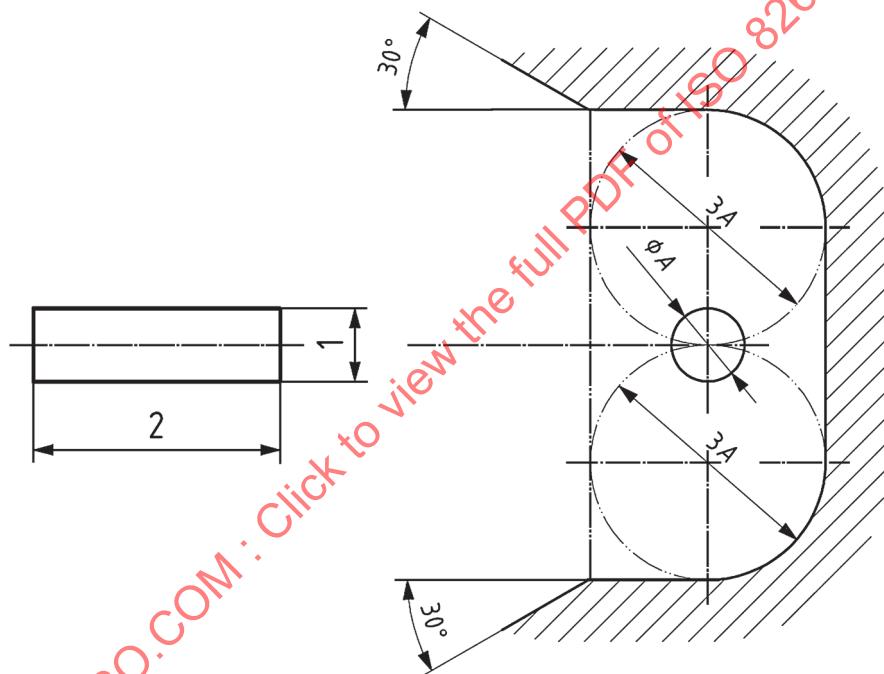
4.4 Fitting configuration, dimensions and clearances

The standard configuration of the attachment fitting shall be a horizontal cylindrical pin with the dimensions given in [Figure 1](#) and in [Table 2](#).

Table 2 — Nominal pin dimensions

Dimensions in millimetres (Values in inches in parentheses)

Dimensions	Category	
	I	II
Diameter, A	19,05 (0,75)	25,40 (1,00)
Length, B	38,10 (1,50)	63,50 (2,50)



Key

1	Diameter, A	0 $-0,125$ mm	0 $-0,005$ in
2	Length, B	$+0,5$ 0 mm	$+0,020$ 0 in

Required space envelope for clearance: $3A$ above and below the towing spool centre.

Figure 1 — Dimensions of the pin

4.5 Tow bar fit

The design of the tow bar device that clamps to the horizontal cylindrical pin shall be such that it:

- grips the pin uniformly over 93 % to 95 % of the length (dimension B);
- is adjustable in order to provide positive engagement on the pin when locked.