BS ISO 8267-2:2015

BSI Standards Publication

Aircraft — Tow bar attachment fittings interface requirements

Part 2: Regional aircraft

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National foreword

This British Standard is the UK implementation of ISO 8267-2:2015. It supersedes BS ISO 8267-2:2005 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee ACE/57, Air cargo and ground support equipment.

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

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Aircraft — Tow bar attachment fittings interface requirements —

Part 2: Regional aircraft

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Partie 2: Aéronefs régionaux

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Contents

Page

Foreword

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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).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

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

This second edition cancels and replaces the first edition (ISO 8267-2:2005), which has been technically revised.

ISO 8267 consists of the following parts, under the general title *Aircraft — Tow bar attachment fittings interface requirements*:

— *Part 1: Main line aircraft*

— *Part 2: Regional aircraft*

Introduction

The aim of this part of ISO 8267 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 part of ISO 8267, 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.

INTERNATIONAL STANDARD **ISO 8267-2:2015(E)**

Aircraft — Tow bar attachment fittings interface requirements —

Part 2: Regional aircraft

1 Scope

This part of ISO 8267 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 part of ISO 8267 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 part of ISO 8267, where deemed appropriate in order to facilitate operation of such aircraft types at airports.

This part of ISO 8267 is applicable to regional commercial transport aircraft airworthiness certified under FAR/EASA-CS Parts 25 with a maximum ramp mass of ≤ 50 000 kg (110 000 lb). It does not apply to

— aircraft airworthiness certified under FAR/EASA-CS Parts 23 as commuter category aeroplanes;

— 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 part of ISO 8267 or ISO 8267-1, throughout the family.

NOTE As far as practical, this part of ISO 8267 was defined in order to be compatible with as many existing aircraft types as possible in the mass category concerned.

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.

Federal Aviation Regulations (FAR) 14CFR Part 25, *Airworthiness Standards: Transport category airplanes*, paragraph 25.509, Towing loads[1)]

EASA CS-25, *Airworthiness Standards: Transport category aeroplanes*, paragraph 25.509, Towing loads[2)]

3 Terms and definitions

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

3.1
main line aircraft
civil passenger and/or freight transport aircraft with a maximum ramp mass of > 50 000 kg (110 000 lb)

3.2
regional aircraft
civil passenger and/or freight transport aircraft with a maximum ramp mass 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 providing the towing loads do not exceed those specified in this part of ISO 8267 and the aircraft is designed accordingly.

4.2 Towing loads

The aircraft nose landing gear tow bar attachment fitting shall be able to withstand the limit towing loads prescribed in 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);

— $F_{TOW} = 6\ M_r\ \frac{204100}{70} \times g$, 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).

1) FAR Part 25 constitute the USA government transport aircraft airworthiness regulations, and can be obtained from the following address: US Government Printing Office, Mail Stop SSOP, Washington DC 20402-9328, USA.

2) EASA-CS Part 25 constitute the European Union transport aircraft airworthiness regulations, and can be obtained from the following address: www.easa.europa.eu

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 ≤ 22 680 (50 000)
II	13 600 (30 000) < M_r ≤ 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).	

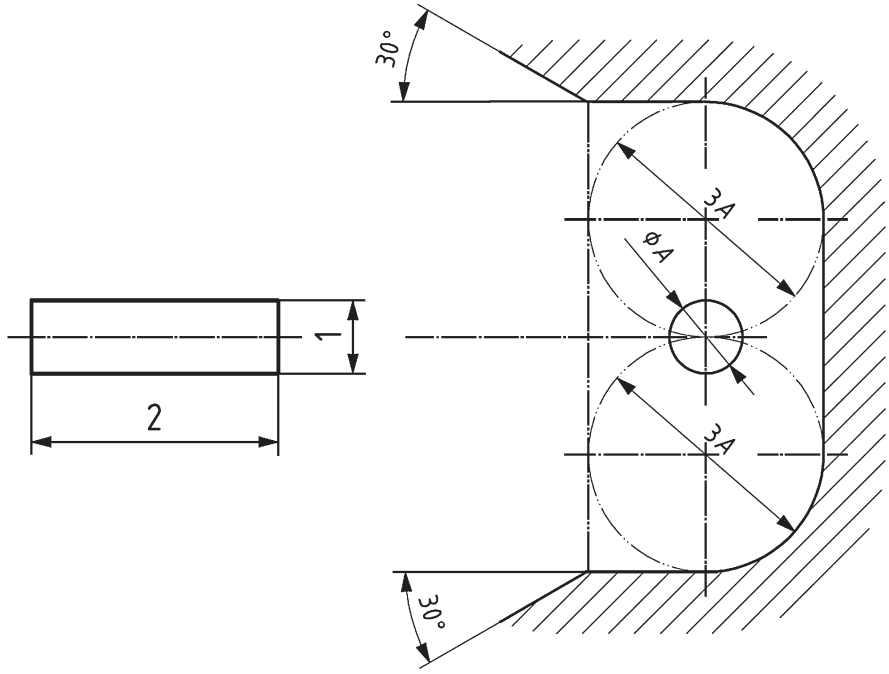
4.4 Fitting configuration, dimensions and clearances

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	25,40
	(0.75)	(1.00)
Length, *B*	38,10	63,50
	(1.50)	(2.50)



Key

1: Diameter A $\quad \frac{0}{-0,125}\,\text{mm}\left(\frac{0}{-0.005}\,\text{in}\right)$

2: Length B $\quad \frac{+0,5}{0}\,\text{mm}\left(\frac{+0.020}{0}\,\text{in}\right)$

NOTE 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:

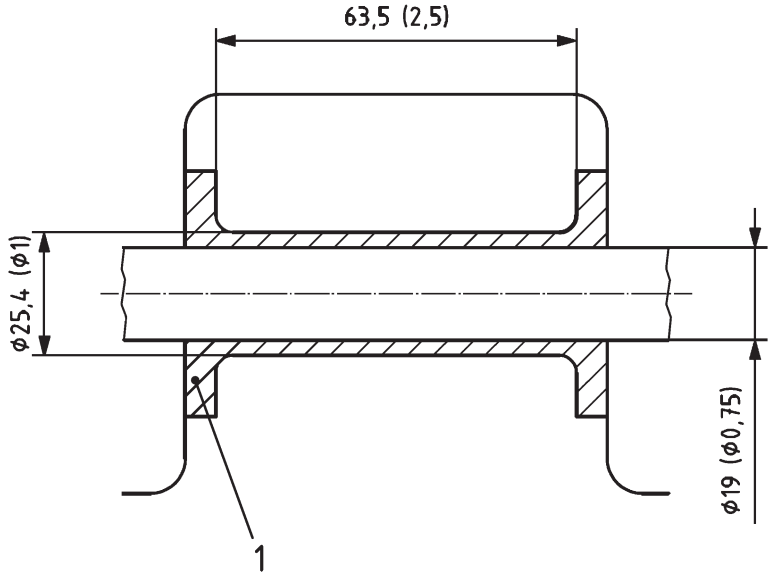
— grips the pin uniformly over 93 % to 95 % of the length (dimension B);

— is adjustable in order to provide positive engagement on the pin when locked.

5 Retrofit option

Where deemed appropriate in order to facilitate operation of such aircraft types at airports, in-service regional aircraft types within the specified maximum ramp mass range, which present tow bar attachment fittings with different dimensions but of an adaptable design, may be rendered compatible with standardized tow bars in conformity with this part of ISO 8267 through simple retrofit modifications. Figure 2 provides an example of such a possible retrofit modification.

Dimensions in millimetres (inches)



Key

1 machined steel spacer [mass 0,23 kg (0,5 lb) approx.]

Figure 2 — Example of retrofit modification for 19 mm (0.75 in) diameter, 76 mm (3.00 in) long existing tow bar attachment fitting (plan view cross section)

Bibliography

[1] ISO 8267-1, *Aircraft — Tow bar attachment fittings interface requirements — Part 1: Main line aircraft*

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