
**Aircraft — Tow bar attachment fittings for
transport aircraft with a maximum ramp
mass over 50 000 kg (110 000 lb) —
Interface requirements**

*Aéronefs — Ferrures de fixation de la barre de tractage pour aéronefs
de transport de masse maximale au roulage supérieure à 50 000 kg
(110 000 lb) — Exigences d'interface*



Foreword

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International Standard ISO 8267 was prepared by Technical Committee 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 8267:1985) of which it constitutes a technical revision.

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Introduction

The purpose of this International Standard is to standardize 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.

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Aircraft — Tow bar attachment fittings for transport aircraft with a maximum ramp mass over 50 000 kg (110 000 lb) — Interface requirements

1 Scope

This International Standard specifies the interface requirements for tow bar attachment fittings on the nose gear (when towing operations are normally done from the nose gear) in conventional tricycle type landing gears of civil transport aircraft as defined by FAR Part 25 or equivalent national airworthiness regulations. It covers tow bar attachment fittings for aircraft with a maximum ramp mass greater than 50 000 kg (110 000 lb). This International Standard does not cover tow bar attachment fittings for aircraft with a ramp mass between 13 600 kg and 50 000 kg.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

FAR Part 25:1974, *Airworthiness Standards: Transport Category Airplanes*, Federal Aviation Administration (USA).

JAR Part 25:509, *Joint Aviation Authorities*.

3 Requirements

3.1 Location of aircraft attachment fittings

The fittings shall be designed to enable straightforward attachment of the towbar at the front of the nose landing gear and, where applicable, at the request of the purchasing airline at the rear of the nose landing gear, for push/pull towing operations.

NOTE — It may be possible to use the wheel axle attachment for a dual-wheel arrangement. This may be acceptable provided that the towing loads do not exceed those specified in this International Standard and that the aircraft has been designed accordingly.

3.2 Design of aircraft attachment fittings

The allowable towing loads on the nose landing gear shall be specified by the aircraft manufacturer and shall conform to the design criteria laid down in 3.2.1 to 3.2.5.

3.2.1 The towing loads shall be applied to the tow bar attachment fittings and their immediate attaching structure.

3.2.2 The towing loads specified in 3.2.5 shall be considered separately. These loads shall be applied at the towing fittings and shall act parallel to the ground. In addition,

- a) a vertical load factor equal to 1 shall be considered as acting at the centre of gravity of the aircraft, and
- b) the shock struts and tyres shall be in their stationary positions.

3.2.3 If m is the design maximum ramp mass of the aircraft and g is the mean acceleration due to gravity, the towing load F_{tow} , in newtons, is

$$F_{\text{tow}} = 0,15 \, mg$$

3.2.4 Where the specified angle of swivel cannot be reached, the maximum obtainable angle shall be used.

3.2.5 The stipulated towing loads are given in table 1.

Table 1 — Stipulated towing loads

Position of the nose gear	Magnitude	Direction
Swivelled forward	F_{tow}	Forward Aft
Swivelled aft	F_{tow}	Forward Aft
Swivelled 45° from forward	$0,5 \, F_{\text{tow}}$	Forward ¹⁾ Aft ¹⁾
Swivelled 45° from aft	$0,5 \, F_{\text{tow}}$	Forward ¹⁾ Aft ¹⁾
1) Parallel and midway between the planes of the wheels.		

3.3 Aircraft mass categories

See table 2.

The tow bar attachment fitting category shall be selected in such a way that no change of type shall be necessary during the aircraft development. For aircraft whose design mass is near the top limit of a mass category, it may be classified in the next higher category to allow for growth.

Table 2 — Aircraft mass categories

Category	Maximum ramp mass	
	kg	lb
I	50 000 to 100 000	110 000 to 220 000
II	100 000 to 150 000	220 000 to 330 000
III	150 000 to 200 000	330 000 to 440 000
IV	200 000 to 260 000	440 000 to 573 000
V	260 000 to 400 000	573 000 to 887 000

3.4 Towbar attachment fitting configuration, dimensions and clearances

The standard configuration of the attachment fittings shall be a horizontal cylindrical pin with the dimensions shown in figure 1 and given in table 3. The required space envelope for clearance shall be in accordance with figure 1.

Table 3 — Dimensions of the pin

Dimensions in millimetres (values in inches in parentheses)

Dimension	Category				
	I	II	III	IV	V
d	38,10 (1,50)	44,45 (1,75)	50,80 (2,00)	57,15 (2,25)	63,50 (2,50)
l	113,03 (4,45)	133,35 (5,25)	165,10 (6,50)	184,15 (7,25)	203,20 (8,00)

Dimensions in millimetres

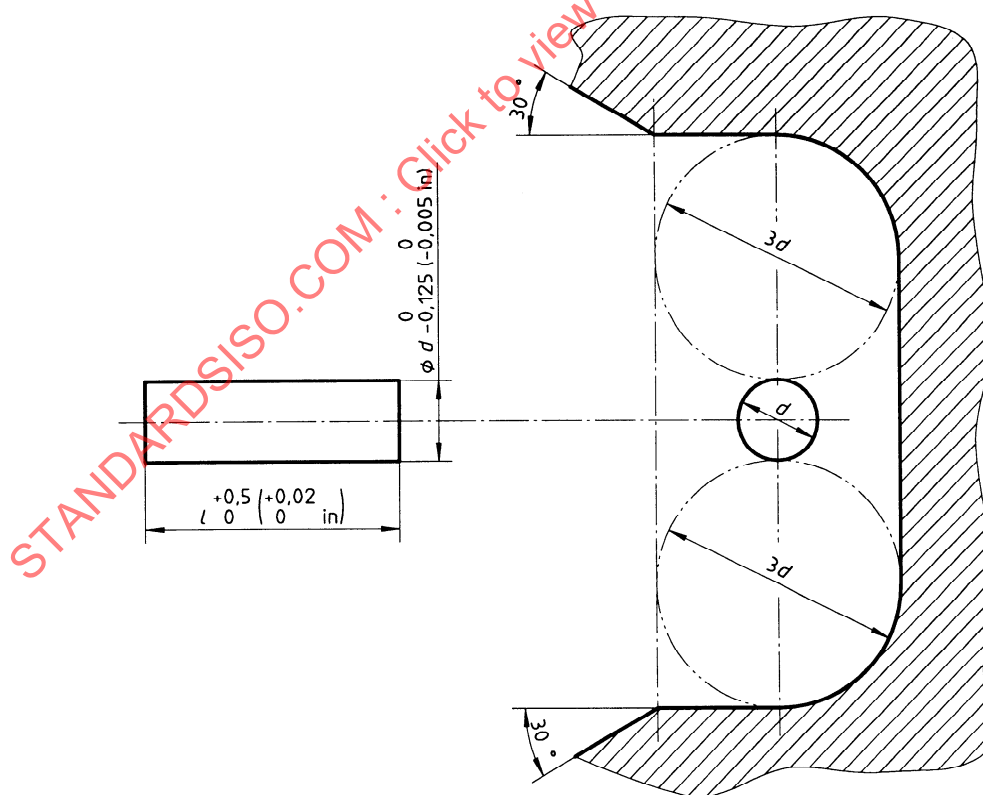


Figure 1 — Dimensions of the pin and the required space envelope

3.5 Required tow bar fit

The design of the towbar device, that clamps to the horizontal cylindrical pin, shall

- a) grip the pin uniformly over 96 % to 98 % of the length (dimension l), and
- b) be adjustable to provide pressure on the pin when locked.

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