
International Standard



7717

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Aircraft — Four-wheel-drive tow tractors — Performance requirements factors for design

Aéronefs — Tracteurs d'aéronefs à quatre roues motrices — Paramètres de conception

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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

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Aircraft — Four-wheel-drive tow tractors — Performance requirements factors for design

1 Scope and field of application

This International Standard identifies and summarizes the various factors that shall be considered and evaluated by the design or specifying engineer in establishing performance requirements for four-wheel-drive aircraft tow tractors.

The International Standard provides a summary of design factors that shall be considered in establishing performance requirements, as well as various tabulated design data and explanatory examples.

It is not within the scope of this International Standard to specify a comprehensive set of design criteria for aircraft tractors, but only those relating to performance requirements.

2 Design factors

The following design factors shall be considered and evaluated in establishing aircraft tow tractor performance requirements.

2.1 Aircraft characteristics

The parameters to be taken into account are the following:

- a) dimensions;
- b) number of landing gear and wheels;
- c) attach point for towing;
- d) gross weight, empty weight, and weight distribution on the wheels;
- e) breakaway resistance of the aircraft as a percentage of aircraft weight for initial motion directed
 - 1) straight ahead,
 - 2) in a turn;
- f) rolling resistance of the aircraft as a percentage of aircraft weight for constant motion on various surfaces on
 - 1) a horizontal plane,
 - 2) a grade;
- g) turn radius of the aircraft;
- h) angularity limitation of the aircraft tow fitting;

j) strength of the aircraft tow fitting when loads are applied

- 1) directly fore and aft,
- 2) in the direction of minimum strength;

k) amount of thrust of engines at idle.

2.2 Airport environment

The parameters to be taken into account are the following:

- a) maximum grades to be negotiated;
- b) minimum speeds required for crossing active taxiways and runways;
- c) parking requirements:
 - 1) parallel or nose-in at gates,
 - 2) spacing from other aircraft,
 - 3) proximity to other fixed physical features,
 - 4) need for remote parking;
- d) paving strength and surfacing of ramps, taxiways, runways and access roads;
- e) road clearance and bridge and overpass limitations;
- f) anticipated towing distances and routes between aircraft maintenance/storage areas and cargo/passenger terminals;
- g) maximum approach and breakover angles to be negotiated on ramps, taxiways, runways and access roads;
- h) other towing equipment limitations, physical or regulatory, unique to the local situation.

2.3 Tow vehicle — General characteristics

The parameters to be taken into account are the following:

- a) dimensional limitations;
- b) visibility requirements;
- c) operator's location(s);