
**Road vehicles — Heavy commercial
vehicles and buses — Calculation
method for steady-state rollover
threshold**

*Véhicules routiers — Véhicules utilitaires lourds et bus — Méthode de
calcul du seuil de renversement en régime permanent*



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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.

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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 dynamic behaviour of a road vehicle is a most important aspect of active vehicle safety. Any given vehicle, together with its driver and the prevailing environment constitutes a closed-loop system which is unique. The task of evaluating the dynamic behaviour is therefore very difficult, since the significant interaction of these driver-vehicle road elements are each complex in themselves. A complete and accurate description of the behaviour of the road vehicle inevitably involves information obtained from a number of different tests.

Moreover, insufficient knowledge is available to correlate overall vehicle dynamic properties with accident prevention. A substantial amount of work is necessary to acquire sufficient and reliable data on the correlation between accident prevention and vehicle dynamic properties in general.

Road vehicles — Heavy commercial vehicles and buses — Calculation method for steady-state rollover threshold

1 Scope

This document describes a method for calculating steady-state rollover threshold of heavy commercial vehicles and buses, not considering the effects of active control systems. The calculation method considers the main factors that influence the rollover threshold, namely the height of centre of gravity, the track, the tyre lateral stiffness, and all factors that affect the vehicle roll stiffness. The considered compliances (e.g. tyre deformation) have a considerable influence on the effective track, and consequently on the steady-state rollover threshold.

NOTE As an alternative to the described calculation method standard, the steady-state rollover threshold can be measured on a test track or with a tilt-table test as described in ISO 16333.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 8855, *Road vehicles — Vehicle dynamics and road-holding ability — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in in ISO 8855 and the following shall apply.

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

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

3.1 steady-state rollover threshold

a_{srt}
maximum lateral acceleration that the vehicle can sustain in a steady state turn without rolling over

3.2 first lift-off lateral acceleration

a_{yf}
lateral acceleration, at which the first wheel lift-off occurs

3.3 total lift-off lateral acceleration

a_{yt}
lateral acceleration, at which theoretically all axles lift from the ground