PD CEN/TS 1317-7:2023



BSI Standards Publication

Road restraint systems

Part 7: Performance characterisation and test methods for terminals of safety barriers

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National foreword

This Published Document is the UK implementation of CEN/TS 1317-7:2023. Together with PD CEN/TR 1317-10:2023 and PD CEN/TS 1317-9:2023, it supersedes DD ENV 1317-4:2002, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/509/1, Road restraint systems.

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

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Road restraint systems -Part 7: Performance characterisation and test methods for terminals of safety barriers

Dispositifs de retenue routiers - Caractérisation des performances et méthodes d'essai pour les extrémités de file de barrières de sécurité

Rückhaltesysteme an Straßen - Leistungsklassen, Abnahmekriterien für Anprallprüfungen und Prüfverfahren für Anfangs-und Endkonstruktionen von Schutzeinrichtungen

This Technical Specification (CEN/TS) was approved by CEN on 4 September 2023 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (CEN/TS 1317-7 :2023) has been prepared by Technical Committee CEN/TC 226 “Road equipment”, the secretariat of which is held by AFNOR.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes ENV 1317-4:2001.

This document does not (and cannot) replace ENV 1317-4:2001 in isolation, only with CEN/TR 1317-10 and CEN/TS 1317-9.

In comparison with the edition, the following technical modifications have been made:

— terminal with performances on both sides defined in 3.3 (double-sided terminals)

— structural beginning of a terminal defined in 3.5 (datum point)

— structural length of a terminal defined in 3.7

— energy absorbing terminal defined in 3.10

— non-energy absorbing terminal defined in 3.11

— determination of the axial force to the barrier determined in 5.1

— methods for the determination of the Datum Point and the Structural Length are given in 5.2

— more restraint categories and different names are given for terminals in Table 1

— more vehicle impact tests are defined in Table 3

— the term “ranges of terminals” supersedes “system type tested terminals” in 5.4

— limit of 6.0m to the total permanent displacement of terminal on the departure side in Table 8

— for the terminal behaviour, consideration of totally detached parts of the terminal with mass greater than 2.0 kg in 5.7.2

— for the test vehicle behaviour, the wheel of a vehicle is not considered crossing one of the lines of the redirection zone, if the velocity of the centre of mass of the vehicle, at the moment of encroaching the line, is less than 11 km/h and advise for the measurement of exit speed are given in 5.7.3

— definition of new terminal energy absorption categories are given in Table 10

— the anchorage capacity of the terminal is measured in 5.8

— different layout of cameras for different approaches are given in 6.7

— objective of the impact tests and guidelines for determination of impact points and exit box is detailed in informative Annex B

— the assessment of the anchorage capacity is detailed in the informative Annex C

This document is to be read in conjunction with EN 1317-1:2010 and EN 1317-2:2010 and EN 1317-5:2007+A2:2012 and CEN/TR 1317-10.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

Introduction

The design purpose of safety barriers installed on roads is to contain errant vehicles that either leave the carriageway or are likely to encroach into the path of oncoming vehicles. EN 1317-2:2010 deals with the impact performance of a safety barrier to which a terminal may be attached.

Terminals, which are defined as the beginning and/or end treatment of a safety barrier, are required to have specified impact performances without introducing additional hazards for passenger cars.

The description of a terminal conforming to this document incorporates the relevant categories and restraint categories of the product.

Turned down terminals are particular end-treatments that have, historically, been designed to 'anchor' and 'end' sections of safety barrier. Turned down terminals consisting of modified components of the barrier do not generally offer a significant level of energy absorbing capacity but can be tested according to this technical specification if required.

NOTE Some National Road Authorities have in the past years developed national rules that, when satisfied, allow the use of such systems within their national jurisdiction without the need of further testing.

In this document reference is made to the use of virtual testing according to EN 16303:2020. Therefore it may be necessary to arrange further rules for the use of virtual testing.

1 Scope

This document specifies requirements, test/assessment methods and acceptance criteria for safety barrier terminals to be used in a permanent or temporary manner on roads and in vehicle circulation areas.

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.

EN 1317-1:2010, *Road restraint systems - Part 1: Terminology and general criteria for test methods*

EN 1317-2:2010, *Road restraint systems - Part 2: Performance classes, impact test acceptance criteria and test methods for safety barriers including vehicle parapets*

EN 16303:2020, *Road restraint systems - Validation and verification process for the use of virtual testing in crash testing against vehicle restraint system*

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

3.1
terminal
treatment of the beginning and/or end of a safety barrier to reduce hazards for passenger cars that would result from the use of an un-treated beginning or end of the barrier (or other construction)

Note 1 to entry: Usually a terminal provides anchorage for the barrier system.

Note 2 to entry: A terminal may include a length of connecting barrier if it is required as part of the working mechanism of the terminal

Note 3 to entry: The performance of a terminal in general is dependent on the barrier connected.

3.2
ST
single sided terminal
terminal which has a performance under impact determined in accordance with the present document on one side

3.3
DT
double-sided terminal
terminal which has performance in accordance with this European Standard, on both sides