

**Road restraint systems - Part 4: Performance classes,
impact test acceptance criteria and test methods for
terminals and transitions of safety barriers**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-ENV 1317-4:2010 sisaldab Euroopa standardi ENV 1317-4:2001 ingliskeelset teksti.

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English version

**Road restraint systems - Part 4: Performance classes, impact
test acceptance criteria and test methods for terminals and
transitions of safety barriers**

Dispositifs de retenue routiers - Partie 4: Classes de
performance, critères d'acceptation des essais de choc et
méthodes d'essai des extrémités et raccordements des
glissières de sécurité

Rückhaltesysteme an Straßen - Teil 4: Leistungsklassen,
Abnahmekriterien für Anprallprüfungen und Prüfverfahren
für Anfangs-, End- und Übergangskonstruktionen von
Schutzeinrichtungen

This European Prestandard (ENV) was approved by CEN on 30 September 2001 as a prospective standard for provisional application.

The period of validity of this ENV 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 ENV can be converted into a European Standard.

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Foreword

This European Prestandard has been prepared by Technical Committee CEN/TC 226 "Road equipment", the secretariat of which is held by AFNOR.

This European Prestandard under the general title "Road restraint systems" consists of the following Parts:

- Part 1: Terminology and general criteria for test methods;
- Part 2: Performance classes, impact test acceptance criteria and test methods for safety barriers;
- Part 3: Performance classes, impact test acceptance criteria and test methods for crash cushions;

The following Parts are not yet available but in course of preparation :

- Part 4: Performance classes, impact test acceptance criteria and test methods for terminals and transitions of safety barriers;
- Part 5: Product requirements, durability and evaluation of conformity;
- Part 6: Pedestrian restraint systems, pedestrian parapet.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this European Prestandard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

The design purpose of safety barriers installed on roads is to contain or to contain and redirect errant vehicles that either leave the carriage way or are likely to encroach into the path of oncoming vehicles. EN 1317-2 deals with the impact performance of a safety barrier. However, difficulties arise in providing adequate safe terminations to the barrier. Consequently, terminals, which are defined as the beginning and/or end treatment of a safety barrier, are required to have specified impact performances. A terminal provides a smooth transition from no containment to the containment of the barrier, without introducing additional hazard for head on impacts.

Problems may also arise in the connection between two different safety barriers having consistent difference in stiffness. Transitions may be needed, that are required to have specified impact performances.

The objective of this prestandard is to lead to the harmonization of current National Regulations, to categorize them into performance classes and help develop new systems and improve existing systems.

This Part of the prestandard defines the classes of performance required of terminals and transitions for the restraint.

The impact severity of vehicles in collision with terminals and transitions is rated by the indices acceleration severity index (ASI), theoretical head impact velocity (THIV) and post-impact head deceleration (PHD).

Attention is drawn to the fact that the acceptance of a terminal or transition will require the successful completion of a series of tests (see Tables 1 to 8).

To ensure proper use of this Part of this series, it is essential to consider all the other relevant documents within the series. Additionally, the quality of manufacture, durability, satisfactory roadside installation and ease of maintenance are important safety criteria.

1 Scope

This European Prestandard specifies requirements for the performance of terminals and transitions. It defines performance classes and acceptance criteria for impact tests.

2 Normative references

This European Prestandard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Prestandard only when incorporated in it by amendments or revisions. For undated references the latest edition of the publication referred to applies (including amendments).

EN 1317-1:1998, *Road restraint systems - Part 1: Terminology and general technical criteria for test methods*.

EN 1317-2, *Road Restraint Systems - Part 2: Performance classes, impact test acceptance criteria and test methods for safety barriers.*

ISO 6487, *Road vehicles - Measurement techniques in impact tests - Instrumentation.*

ISO 10392, *Road vehicles with two axles - Determination of centre of gravity.*

3 Abbreviations

ASI	Acceleration severity index;
THIV	Theoretical head impact velocity;
PHD	Post-impact head deceleration;
VCDI	Vehicle cockpit deformation index;
U	Terminal on upstream position;
D	Terminal on downstream position;
A	Terminal on upstream as well as downstream position;
L	Length of terminal or transition.

Impact speed classes abbreviations are:

80	80 km/h
100	100 km/h
110	110 km/h

Test vehicle mass codes are:

1	900 kg
2	1300 kg
3	1500 kg

4 Terms and definitions

4.1

terminal

treatment of the beginning and/or the end of a safety barrier

NOTE In addition it can provide an anchorage for the barrier system. The length L of a terminal is the longitudinal distance from the nose to the end of the terminal, i.e. to the beginning of the barrier. The length of a terminal is shown diagrammatically in Figure 1 for two alternative shapes.