

## **Teepiirdesüsteemid. Osa 1: Terminoloogia ja katsemeetodite üldkriteeriumid**

Road restraint systems - Part 1: Terminology and  
general criteria for test methods

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 1317-1:1999 sisaldab Euroopa standardi EN 1317-1:1998 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 23.11.1999 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 1317-1:1999 consists of the English text of the European standard EN 1317-1:1998.</p> <p>This document is endorsed on 23.11.1999 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
--	---

<p><b>Käsitlusala:</b></p> <p>Käesolev Euroopa standard esitab selle standardi muudes osades maantee sõidukite piirdesüsteemide ja jalakäijate piirdesüsteemide käsitlemisel kasutatavate põhimõistete määratlused. Samuti määrab standard kindlaks katsemeetodite üldnormid. Teatmelisad B ja C annavad teavet kokkupõrke tagajärjel tekkiva kineetilise energia ja sõiduki kiirenduse kohta.</p>	<p><b>Scope:</b></p>
--	----------------------

**ICS** 01.040.93, 13.200, 93.080.30

**Võtmesõnad:** kaitserinnatised, kaitsevahendid, kõnniteed, löögiteimid, määratlused, teed, teedeohutus, tehnilised andmed, testid

ICS 01.040.93; 13.200; 93.080.30

Descriptors: Road safety, restraint systems, concepts, testing.

**English version**

**Road restraint systems**

**Part 1: Terminology and general criteria for test methods**

Dispositifs de retenue routiers –  
Partie 1: Terminologie et dispositions  
générales pour les méthodes d'essais

Rückhaltesysteme an Straßen –  
Teil 1: Terminologie und allgemeine  
Kriterien für Prüfverfahren

This European Standard was approved by CEN on 1998-03-05.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

**CEN**

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

**Central Secretariat: rue de Stassart 36, B-1050 Brussels**

## Contents

<b>Foreword</b> .....	<b>3</b>
<b>Introduction</b> .....	<b>4</b>
<b>1 Scope</b> .....	<b>4</b>
<b>2 Normative references</b> .....	<b>5</b>
<b>3 Abbreviations</b> .....	<b>5</b>
<b>4 Road restraint system terminology</b> .....	<b>5</b>
<b>5 Vehicle specifications under test conditions</b> .....	<b>7</b>
<b>6 Measurement of the acceleration severity index (ASI)</b> .....	<b>9</b>
<b>7 Measurement of the theoretical head impact velocity (THIV) and post-impact head deceleration (PHD)</b> .....	<b>11</b>
<b>8 Compensation for instrumentation displaced from the vehicle centre of gravity</b> .....	<b>17</b>
<b>9 Test report</b> .....	<b>19</b>
<b>Annex A (Normative) Vehicle cockpit deformation index (VCDI)</b> .....	<b>23</b>
<b>Annex B (Informative) Impact kinetic energy and theoretical average force</b> .....	<b>26</b>
<b>Annex C (Informative) Vehicle acceleration - Measurement and calculation methods</b> ....	<b>29</b>

## Foreword

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

This European Standard consists of the following Parts under the general title : Road restraint systems.

- 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 : Crash cushions - 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 : Impact tests acceptance criteria and test methods for terminals and transitions of safety barriers ;
- Part 5 : Durability criteria and evaluation of conformity ;
- Part 6 : Pedestrian road restraint system.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 1998, and conflicting national standards shall be withdrawn at the latest by October 1998.

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

## Introduction

In order to improve and maintain highway safety, the design of safer roads requires the installation, on certain sections of road and at particular locations, the installation of devices to restrain vehicles and pedestrians from entering dangerous zones or areas. The road restraint systems designated in this standard are designed to specified performance levels of containment and to redirect errant vehicles and to provide guidance for pedestrians or other road users.

The objective of the standard is to provide a procedure whereby the present national standards and regulations, which currently pertain in member countries, can be harmonised to a common European Standard.

Many types of road restraint systems are available ; their characteristics differ both by function and by on-road. European standardisation requires common terminology in order to provide a clear understanding of the design, performance, production and construction of the various road restraint systems.

The standard identifies impact test tolerances and vehicle performance criteria that need to be met to gain approval. The design specification, for road restraint systems entered in the test report, should identify the on-road site conditions under which the road restraint system should be installed.

The performance range of restraint systems, designated in this standard, enables national and Local Authorities to recognize and specify the performance class to be deployed.

The range of possible vehicular impact into an on-road road restraint system is extremely large in terms of speed, approach angle, vehicle type, vehicle attitude, and other vehicle and road conditions. Consequently the actual on-road impacts which occur may vary considerably from the specific standard test conditions. However, adequate implementation of the standard should identify the characteristics, in a candidate safety road restraint system, that are likely to achieve maximum safety and reject those features which are unacceptable.

It is recommended that this standard is reviewed within a period of five years or following the completion of a proposed set of impact validation tests.

## 1 Scope

This European Standard gives the definitions of the principal terms used for road vehicle restraint systems and pedestrian restraint systems in other Parts in this standard. It also specifies the general provisions for test methods.

Informative annexes B and C give information on impact kinetic energy and vehicle acceleration.

## 2 Normative references

This European Standard 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 Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

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

prEN 1317-3      Road restraint systems - Part 3 : Performance classes, impact test acceptance criteria and test methods for crash cushions

## 3 Abbreviations

ASI :	Acceleration severity index
THIV :	Theoretical head impact velocity
PHD :	Post-impact head deceleration
OIV :	Occupant impact velocity
ORA :	Occupant ridedown acceleration
VCDI :	Vehicle cockpit deformation index
VIDI :	Vehicle interior deformation index

## 4 Road restraint system terminology

The types of systems are shown in figure 1 :