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English Version

**Road restraint systems - Part 8: Motorcycle road restraint
systems which reduce the impact severity of motorcyclist
collisions with safety barriers**

Dispositifs de retenue routiers - Partie 8 : Dispositifs de
retenue routiers pour motos réduisant la sévérité de choc
en cas de collision de motocyclistes avec les barrières de
sécurité

Rückhaltesysteme an Straßen - Teil 8: Rückhaltesysteme
für Motorräder, die die Anprallheftigkeit an Schutzplanken
für Motorradfahrer reduzieren

This Technical Specification (CEN/TS) was approved by CEN on 7 February 2012 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.

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Contents

Page

Foreword	3
Introduction	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Abbreviations	6
5 Biomechanical indices for assessing the impact severity of a PTW rider against an MPS	7
5.1 General	7
5.2 Index representing the head injury risk: Head injury criterion (HIC_{36})	7
5.3 Indices representing neck injury risk	7
6 Test methods	9
6.1 General	9
6.2 Test site	9
6.3 Propulsion system	9
6.4 ATD and instrumentation	9
6.5 ATD clothing and equipment	10
6.6 ATD mass including equipment	10
6.7 Installation	10
6.8 Impact conditions	11
6.9 Launch configurations	11
6.10 Accuracies and deviation of impact speeds and angles	14
6.11 Photographic coverage	15
7 Performance classes	16
7.1 General	16
7.2 Speed classes	17
7.3 Severity levels	17
7.4 Deformation of the CMPS	21
8 Acceptance criteria of the impact test	22
8.1 MPS behaviour	22
8.2 ATD behaviour	22
8.3 Severity indices	24
8.4 Vehicle impact performance	24
9 Test report	24
Annex A (informative) Detailed test report template	25
Annex B (informative) Anthropomorphic test device	30
Annex C (informative) Helmet alignment tool	32
Annex D (informative) Modification of the anthropomorphic test device shoulder	34
Annex E (informative) Reference helmet	40
Annex F (informative) Helmet calibration procedure	41
F.1 General	41
F.2 Helmet description	41
F.3 Procedure description and layout	41
F.4 Helmet assessment	42
Bibliography	44

Foreword

This document (CEN/TS 1317-8:2012) 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 [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

EN 1317 consists of the following parts:

- EN 1317-1, *Road restraint systems — Part 1: Terminology and general criteria for test methods*;
- EN 1317-2, *Road restraint systems — Part 2: Performance classes, impact test acceptance criteria and test methods for safety barriers including vehicle parapets*;
- EN 1317-3, *Road restraint systems — Part 3: Performance classes, impact test acceptance criteria and test methods for crash cushions*;
- ENV 1317-4, *Road restraint systems — Part 4: Performance classes, impact test acceptance criteria and test methods for terminals and transitions of safety barriers* ¹⁾;
- EN 1317-5, *Road restraint systems — Part 5: Product requirements and evaluation of conformity for vehicle restraint systems*;
- CEN/TR 1317-6, *Road restraint systems — Part 6: Pedestrian restraint systems — Pedestrian parapets* ²⁾;
- prEN 1317-7, *Road restraint systems — Part 7: Performance classes, impact test acceptance criteria and test methods for terminals of safety barriers*;
- CEN/TS 1317-8, *Road restraint systems — Part 8: Motorcycle road restraint systems which reduce the impact severity of motorcyclist collisions with safety barriers*.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1) ENV 1317-4:2001 will be superseded by future EN 1317-4, *Road restraint systems — Part 4: Performance classes, impact test acceptance criteria and test methods for transitions of safety barriers* (under preparation).

2) Under preparation.

Introduction

In order to improve safety, the design of roads may require the installation of road restraint systems, which are intended to contain and redirect errant vehicles safely for the benefit of the occupants and other road users, or pedestrian parapets designed to restrain and to guide pedestrians and other road users not using vehicles, on sections of road and at particular locations defined by the national or local authorities.

EN 1317-2 contains performance classes, impact test acceptance criteria and test methods for barriers. Whereas EN 1317-2 covers the performance of these systems with respect to cars and heavy vehicles, this Technical Specification addresses the safety of the riders of powered two-wheeled vehicles impacting the barrier having fallen from their vehicle.

As powered two-wheeler riders may impact a barrier directly (in which case no protection is offered by the vehicle), special attention is given to these vulnerable road-users. In order to minimise the consequences to a rider of such an impact, it may be necessary to fit a barrier with a specific PTW rider protection system. Alternatively, a barrier might specifically incorporate characteristics limiting the consequences of a PTW rider impact.

Rider protection systems may be continuous (including barriers specifically designed with the safety of PTW riders in mind) or discontinuous. A discontinuous system is one which offers rider protection in specific localised areas of a barrier judged to be of higher risk. The most common example of a discontinuous system is one fitted locally to the posts of a post and rail type guardrail - adding nothing between the posts.

The purpose of this Technical Specification is to define the terminology specific to it, to describe procedures for the initial type-testing of rider protection systems and to provide performance classes and acceptance criteria for them.

Accident statistics from several European countries have shown that riders are injured when impacting barriers either whilst still on their vehicles or having fallen and then sliding along the road surface. Whilst different statistical sources show one or the other of these configurations to be predominant, all known studies show both to constitute a major proportion of rider to barrier impact accidents. Some studies showing the sliding configuration to be predominant have led to the development and use of test procedures in some European countries, evaluating systems with respect to the sliding configuration. At the time of writing, a number of such protection systems were already on the European market. It is for this reason that it was decided to address the issue of sliding riders initially, in order to bring about the adoption of a European Standard in as timely a manner as possible. However, the rider on vehicle configuration should also be considered as soon as possible as a subsequent addition.

This Technical Specification shall be read in conjunction with EN 1317-1 and EN 1317-2.

1 Scope

This Technical Specification specifies requirements for the impact performance of systems designed for the reduction of impact severity for PTW riders impacting safety barriers whilst sliding along the ground, having fallen from their PTW vehicle. The protection systems concerned are those fitted to barriers or barriers that have an inherent PTW rider protection or risk reduction capability. This Technical Specification excludes the assessment of the vehicle restraint capabilities of barriers and the risk that they represent to the occupants of impacting cars. The assessment of performance of impacting vehicles is covered by EN 1317-1 and EN 1317-2.

This Technical Specification defines performance classes taking into account rider speed classes, impact severity and the working width of the system with respect to rider impacts.

For systems designed to be added to a standard barrier, the test results are valid only when the system is fitted to the model of barrier used in the tests since the performance will not necessarily be the same if the system is fitted to a different barrier.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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, *Road restraint systems — Part 1: Terminology and general criteria for test methods*

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

EN 1621-1, *Motorcyclists' protective clothing against mechanical impact — Part 1: Requirements and test methods for impact protectors*

EN ISO 4762, *Hexagon socket head cap screws (ISO 4762)*

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

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

biomechanical indices

indices obtained from the registers measured in the ATD, which are used to evaluate the severity of the impact

3.2

clothing

see 6.5.2

3.3

continuous motorcyclist protection system

any MPS placed continuously along a barrier with the purpose of retaining and redirecting an impacting rider, usually preventing direct impact with aggressive elements of the barrier such as posts, anchorages or module connections, and that also prevents a sliding rider from passing between the posts of a barrier and coming into contact with any potential hazard that may be behind the barrier