



EN 1317
for
Vehicle Restraint Systems (VRS)
- overview –
presented by
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16th World Meeting
International Road Federation
Lisboa 25 – 28th May 2010



A) Essentials of CEN and EN 1317

**B) Topics (regarding the application
of EN 1317)**

C) Conclusion and Recommendation



Essentials of CEN and EN 1317

- **The national standards bodies of:**

Austria, Belgium, Bulgaria, 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 and United Kingdom.

- **CEN Affiliates (as of May 2009):**

Albania, Armenia, Bosnia-Herzegovina, Croatia, Egypt, The Former Yugoslav Republic of Macedonia, Georgia, Israel, Jordan, Lebanon, Republic of Moldova, Montenegro, Serbia, Tunisia, Turkey, Ukraine.



Obligations of the CEN Members (Including the Affiliates)



To commit to comply with the rules set or to be set in the future by the CEN Statutes and/or CENELEC Articles of Association, the CEN/CENELEC Internal Regulations and other relevant resolutions taken by the General Assembly and Administrative Board of CEN and/or CENELEC, including financial obligations.

To implement ENs, developed by Technical Bodies in which it participates, as national standards in accordance with the CEN/CENELEC Internal Regulations – Part 2, to show evidence of the adoption of ENs and to withdraw conflicting national standards

The Construction Products Directive



European Directive on Construction Products
89/106/EEC – 21 December 1988
(CE Marking)



CEN M / 111 Mandat
(Circulation Fixtures)



CEN / TC226 / WG1
Vehicle restraint systems



EN 1317
standard

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EN 1317-2 ~ Acceptance Criteria

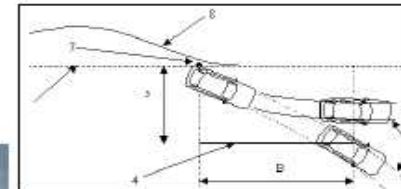
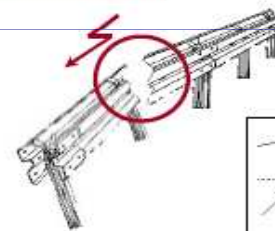


EN 1317-2 ~ Acceptance Criteria



Classes of normalised working width levels	Levels of normalised working width (m)
W1	$W \leq 0,6$
W2	$W \leq 0,8$
W3	$W \leq 1,0$
W4	$W \leq 1,3$
W5	$W \leq 1,7$
W6	$W \leq 2,1$
W7	$W \leq 2,5$
W8	$W \leq 3,5$

All must be fulfilled!!!



Impact severity level	Index values		
	A	ASI 1,0	and
B	ASI 1,4		
C	ASI 1,9		(PHD \leq 20g)

EN 1317-2 ~ Acceptance Criteria



EN 1317-2 ~ Acceptance Criteria



- First criterion: Containment Level

	N1	N2	H1	H2	H3	H4
1 st test	1500 kg	900 kg	900 kg	900 kg	900 kg	900 kg
2 nd test		1500 kg	10 T	13 T	16 T	38 T

N type safety barrier
Light vehicles



H type safety barrier
Heavy vehicles



EN 1317-2 ~ Acceptance Criteria



EN 1317-2 ~ Acceptance Criteria



- First criterion: Containment Level

CONTAINMENT	CLASS	ACCEPTANCE TESTS
<i>Temporary</i>	T1	TB 21
	T2	TB 22
	T3	TB 41 + TB 21
<i>Normal</i>	N1	TB 31
	N2	TB 32 + TB 11
	H1	TB 42 + TB 11
<i>High</i>	H2	TB 51 + TB 11
	H3	TB 61 + TB 11
	H4a	TB 71 + TB 11
<i>Very High</i>	H4b	TB 81 + TB 11



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EN 1317-2 ~ Acceptance Criteria



EN 1317-2 ~ Acceptance Criteria



- First criterion: Containment Level

*Counter-example :
Failed on containment level !*





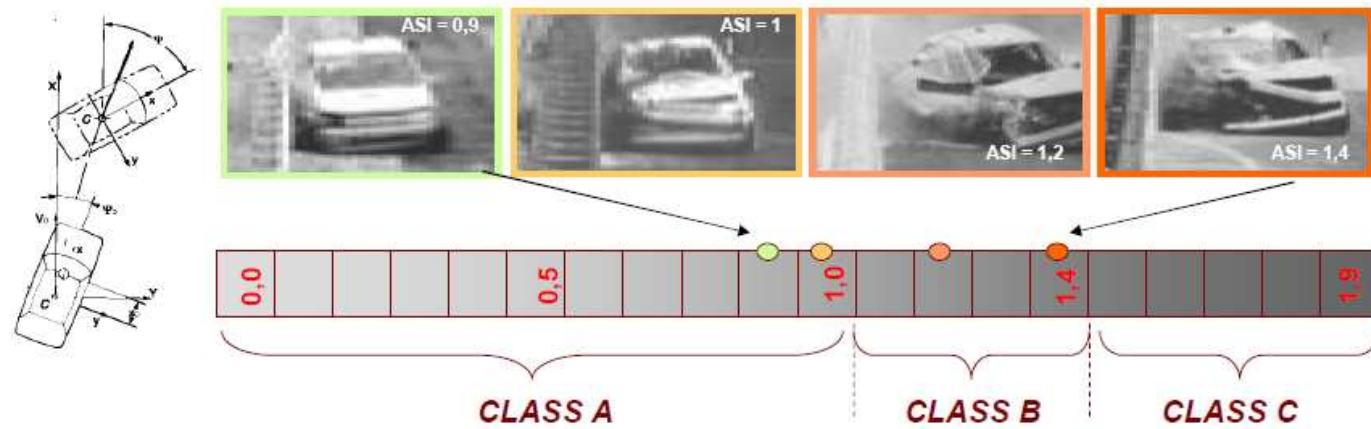
EN 1317-2 ~ Acceptance Criteria



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- Second criterion: Acceleration Severity Index (ASI)





EN 1317-2 ~ Acceptance Criteria



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- Second criterion: Acceleration Severity Index (ASI)





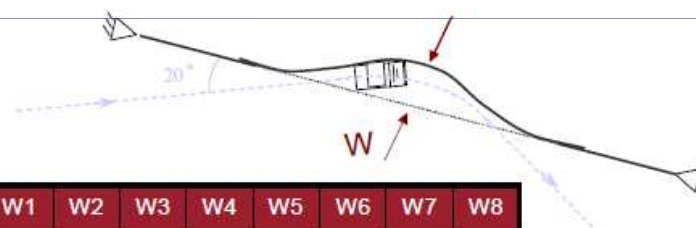
EN 1317-2 ~ Acceptance Criteria



EN 1317-2 ~ Acceptance Criteria



- Third criterion: Working Width (W) and Dynamic Deflection (D)



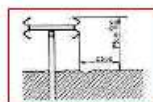
Classes	W1	W2	W3	W4	W5	W6	W7	W8
Displacement lower than [m]	0,6	0,8	1,0	1,3	1,7	2,1	2,5	3,5



Old concrete guardrail



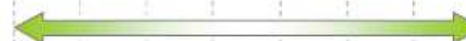
New concrete guardrail



Old steel guardrail



New steel guardrail





EN 1317-2 ~ Acceptance Criteria



EN 1317-2 ~ Acceptance Criteria



- Third criterion: Working Width (W) and Dynamic Deflection (D)





EN 1317-2 ~ Acceptance Criteria



EN 1317-2 ~ Acceptance Criteria



- Other criteria:
 - No Intrusions:



EN 1317-2 ~ Acceptance Criteria



EN 1317-2 ~ Acceptance Criteria



- Other criteria :
 - Redirect in a controlled way :



- And many other criteria...



Key Events and Dates for EN 1317

- **Publication of the hEN 1317-5 reference**
- **on the Official Journal of the European Communities (OJEC) 04.12.2007**
- **Validity and start of co-existence period of hEN 1317-5 01.01.2008 – 31.12.2010**
- **Publication of the hEN reference by national authorities before 01.01.2011**
- **Date of Withdrawal (DoW)**
- **of conflicting national provisions & standards 01.01.2011**
- **Application for acceptance of Initial Type Testing (ITT's) 31.12.2013**



Topics:

(regarding the application of EN 1317)

- Having presented the core issues and formal structure of EN 1317 , I want to raise some points resulting from the application of EN 1317, especially Part 1,2 and 3, in my every day work :
- EN 1317 is performance - driven ,only without any reference to Design,Installation and Maintenance



- that is the main reason for problems resulting from the mandatory application of EN 1317 on EU – Level , but with regards to Design and Installation we have to work with national or even without any regulation



- the problems start already with the drafting of the tender specifications in the offices of Authorities and Consulting Companies (Barrier – Designs, Containment Levels, definition of Hazards and dangers)
- Transfer of these Problems to the Contractors, when preparing their bids and



- Ending (preliminary) on the tables of the specialized Companies for production, sales and installation of safety barriers
- From my experience with big international projects I would say that the majority of problems is resulting from installation issues like



- Soil categories
- End –treatments of barrier- systems
- Transition from one to the other barrier-system
- Expansion – joints



- Installation heights of the systems
- Length of need before and after the obstacle

Outlook:



- The Harmonization of National Standards for Safety Systems is an important step to start with a European Road Safety Concept (see EU – Road Safety Action Program)
- These Standards like EN 1317 (VRS) are **performance-related** without any reference to Design, Installation and Maintenance.
- Aiming to improve Road Safety within all EU-Member States requires a minimum level of Infrastructural Road Safety, based on EN-Standards and agreed between the relevant State-Authorities.



This can be achieved only,
if we agree on

EU-wide uniform determination of the
roadside hazards

- EU-wide minimum installation criteria
like length of need, minimum height of
barrier system etc.
- EU-wide minimum containment classes
for protection against uniform
determined roadside hazards

Recommendation:



In consequence of the before described I hereby ask the EU-Authorities to issue a new Mandate or Work Item for the

- EU-Harmonization of the Definition and Terminology of Roadside Hazards and
- EU-Minimum Protection Levels for Roadside Hazards according to EN 1317.
- EU-Basic-Guidelines for Installation



Thanks for your attention
B. Wolfgang Wink