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Puhvrid KONSOLIDEERITUD TEKST**

Railway applications - Railway rolling stock - Buffers  
CONSOLIDATED TEXT

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 15551:2009+A1:2010 sisaldab Euroopa standardi EN 15551:2009+A1:2010 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 31.12.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 03.11.2010.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 15551:2009+A1:2010 consists of the English text of the European standard EN 15551:2009+A1:2010.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 31.12.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 03.11.2010.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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English Version

## Railway applications - Railway rolling stock - Buffers

Applications ferroviaires - Wagons - Tampons

Bahnanwendungen - Schienenfahrzeuge - Puffer

This European Standard was approved by CEN on 31 January 2009 and includes Amendment 1 approved by CEN on 28 September 2010.

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# Contents

Page

Foreword.....	5
Introduction .....	6
1 Scope .....	7
2 Normative references .....	7
3 Terms and definitions .....	8
4 Classification and designation.....	10
4.1 General.....	10
4.2 Buffers with buffer stroke 105 mm (Categories A, B and C) .....	10
4.3 Buffers with buffer stroke 110 mm.....	10
4.4 Long stroke buffer 150 mm.....	10
4.5 Interaction coupling/buffer .....	11
5 Requirements .....	11
5.1 General.....	11
5.2 Fixing on vehicle and interchangeability .....	11
5.3 Buffer dimensions .....	12
5.4 Mechanical characteristics of buffers .....	13
5.5 Elastic devices .....	15
5.5.1 Types of elastic devices.....	15
5.5.2 Static characteristics .....	15
5.5.3 Dynamic characteristics .....	16
5.5.4 Endurance testing under service load for elastic device .....	16
5.5.5 Endurance testing for life-cycle simulation .....	16
5.6 Marking .....	16
6 Housing.....	18
6.1 Plunger and base .....	18
6.2 Buffer head .....	18
6.2.1 Materials .....	18
6.2.2 Boundary dimensions .....	18
6.2.3 Standard dimensions of buffer head .....	19
7 Crashworthy buffers for tank wagons according to RID .....	20
Annex A (normative) Maximum space envelope of buffer.....	21
A.1 Requirements for space envelope of buffer .....	21
A.1.1 Buffers for freight wagons .....	21
A.1.2 Buffers for coaches .....	24
A.2 Notes on definition of envelopes for overall dimensions of wagon buffers described in Annex A .....	24
A.2.1 General.....	24
A.2.2 Study relating to definition of the envelope.....	25
Annex B (normative) Mechanical characteristics of buffers - Test methods.....	27
B.1 General.....	27
B.2 Force F1 .....	27
B.3 Force F2 .....	27
B.4 Force F3 .....	27
B.5 Force F4 .....	28
B.6 Force F5 .....	28
B.7 Force F6 .....	28

<b>Annex C (normative) Requirements for elastic devices .....</b>	<b>29</b>
<b>C.1 Rubber elastomer or other elastomer elastic systems .....</b>	<b>29</b>
C.1.1 General .....	29
C.1.2 Metal inserts.....	29
C.1.3 Constituents of rubber elastomer and/or other elastomer systems .....	29
C.1.4 Static characteristics of the sets .....	31
C.1.5 Dynamic characteristics of the sets .....	31
C.1.6 Bonding .....	31
C.1.7 Marking.....	31
C.1.8 Inspection and tests.....	31
<b>C.2 Friction spring/Ring spring .....</b>	<b>32</b>
C.2.1 Manufacturer's marks .....	32
C.2.2 Flexibility test.....	33
C.2.3 Endurance test.....	34
<b>C.3 Hydrodynamic or hydrostatic systems .....</b>	<b>34</b>
C.3.1 General .....	34
C.3.2 Steel parts .....	34
C.3.3 Absorbing energy medium .....	34
C.3.4 Static tests of capsules.....	35
<b>C.4 Combined elastic systems .....</b>	<b>35</b>
<b>Annex D (normative) Testing of static characteristics of buffers.....</b>	<b>36</b>
D.1 Test principle .....	36
D.2 Test procedure.....	36
D.3 Measurements .....	36
<b>Annex E (normative) Dynamic testing .....</b>	<b>37</b>
<b>E.1 Dynamic testing of buffer .....</b>	<b>37</b>
E.1.1 General .....	37
E.1.2 Temperature effects .....	38
<b>E.2 Dynamic characteristics of 105 mm stroke buffer .....</b>	<b>39</b>
E.2.1 Test programme .....	39
E.2.2 Category A .....	40
E.2.3 Category B .....	40
E.2.4 Category C .....	41
E.2.5 Comments on the test conditions .....	41
<b>E.3 Dynamic characteristics of 150 mm stroke buffer .....</b>	<b>42</b>
<b>E.4 Dynamic characteristics of 110 mm stroke buffer .....</b>	<b>43</b>
<b>Annex F (normative) Endurance testing under service load for elastic device .....</b>	<b>44</b>
F.1 Aim of the test.....	44
F.2 Test principle .....	44
F.3 Test results to be obtained.....	45
F.4 Test requirements .....	45
F.4.1 Endurance test assembly .....	45
F.4.2 Preliminary static test .....	46
F.4.3 Endurance test.....	46
F.4.4 Final static test .....	46
<b>Annex G (normative) Endurance testing under buffing load for life-cycle simulation.....</b>	<b>47</b>
<b>G.1 Endurance tests for hydrodynamic and hydrostatic buffers for wagons .....</b>	<b>47</b>
G.1.1 Aim of the test.....	47
G.1.2 Test principle .....	47
G.1.3 Expected result.....	47
G.1.4 Test requirements .....	47
G.1.5 Delivery of elastic devices.....	50
<b>G.2 Endurance tests for hydrodynamic and hydrostatic buffers for coaches .....</b>	<b>50</b>
G.2.1 General .....	50
G.2.2 Tests under alternating loads .....	50
G.2.3 Repeated buffing tests.....	51
G.2.4 Conditions to be observed .....	51

<b>Annex H (normative) Plunger and base .....</b>	<b>52</b>
<b>H.1 Plunger and base .....</b>	<b>52</b>
<b>H.2 Manufacture of housing .....</b>	<b>52</b>
<b>H.2.1 Welding .....</b>	<b>52</b>
<b>H.2.2 Initial greasing.....</b>	<b>52</b>
<b>Annex I (informative) Guidelines for buffer head materials .....</b>	<b>53</b>
<b>I.1 Example of test program requirements for verification of buffer head materials .....</b>	<b>53</b>
<b>I.2 List of existing buffer head materials .....</b>	<b>55</b>
<b>Annex J (normative) Calculation of the width of buffer heads.....</b>	<b>56</b>
<b>J.1 General.....</b>	<b>56</b>
<b>J.2 Data used in the calculation .....</b>	<b>56</b>
<b>J.3 Calculation.....</b>	<b>56</b>
<b>Annex K (informative) Regulations relating to the layout of S-curves .....</b>	<b>58</b>
<b>K.1 Data used in the calculation .....</b>	<b>58</b>
<b>K.2 Equations to be applied .....</b>	<b>58</b>
<b>K.3 Working examples .....</b>	<b>59</b>
<b>K.4 Comments on the preparation of the equations in Annex J and Annex K .....</b>	<b>60</b>
<b>K.5 Track .....</b>	<b>60</b>
<b>K.6 Vehicle .....</b>	<b>60</b>
<b>Annex L (normative) Crashworthy buffers for tank wagons according to RID .....</b>	<b>61</b>
<b>L.1 Requirements on crashworthy buffers.....</b>	<b>61</b>
<b>L.1.1 Objectives from RID .....</b>	<b>61</b>
<b>L.1.2 Additional requirements .....</b>	<b>61</b>
<b>L.2 Test procedure for crashworthy buffers .....</b>	<b>61</b>
<b>Annex M (normative) Maximum space envelope of crashworthy buffers.....</b>	<b>63</b>
<b>Annex ZA (informative)  Relationship between this European Standard and the Essential Requirements of EU Directive 2008/57/EC of the European Parliament and of the Council of 17 June 2008 on the interoperability of the rail system within the Community (Recast)  .....</b>	<b>66</b>
<b> deleted text  .....</b>	
<b>Bibliography .....</b>	<b>71</b>

## Foreword

This document (EN 15551:2009+A1:2010) has been prepared by Technical Committee CEN/TC 256 "Railway applications", the secretariat of which is held by DIN.

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 May 2011, and conflicting national standards shall be withdrawn at the latest by May 2011.

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 includes Amendment 1, approved by CEN on 2010-09-28.

This document supersedes EN 15551:2009.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**.

**A1** This document has been prepared under a mandate given to CEN/CENELEC/ETSI by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2008/57/EC.

For relationship with EU Directive 2008/57/EC, see informative Annex ZA, which is an integral part of this document. **A1**

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: 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 and United Kingdom.

## Introduction

The main purpose of normative documents used until now for the delivery of buffers (UIC leaflets, national standards) was a complete definition of the acceptance procedures and of the buffers characteristics which were to be verified.

Product qualification was sometimes mentioned but the procedures used and the product characteristics to be verified during qualification were not given.

This European Standard addresses all buffer characteristics that are assembly characteristics and finished product characteristics and do not arise from a choice of design parameters such as diameters, interferences, materials etc.

The buffer and its components are delivered by suppliers that operate a quality system.

NOTE The quality systems used should offer equivalence with EN ISO 9001.

This European Standard is based on UIC 526-1, UIC 526-3, UIC 527-1, UIC 528, UIC 573, UIC 827-1 and UIC 827-2.

For coaches the technical content at present is limited to that given in UIC 528:2007.



## 1 Scope

This European Standard defines the requirements for buffers with 105 mm, 110 mm and 150 mm stroke for vehicles or units which use buffers and screw coupling at the coupling interface with other interoperable rolling stock. It covers the functionality, interfaces and testing procedures, including pass fail criteria, for buffers.

**NOTE** Typically, buffers with a stroke of 105 mm are used on freight wagons and locomotives, buffers with a stroke of 110 mm are used on coaches and locomotives and buffers with a stroke of 150 mm are used on freight wagons.

It defines the different categories of buffers, the space envelope, static and dynamic characteristics and energy absorption.

It includes a calculation method to determine the minimum size of the buffer head to avoid override between buffers.

It defines the static and dynamic characteristics of the elastic systems.

It also defines the requirements for buffers with integrated crash elements (crashworthy buffers) for tank wagons only according to RID.

The requirements of this European Standard also apply to locomotives and passenger coaches which have to meet the crashworthiness requirements of EN 15227 for buffers in normal service only. The properties for the energy absorbing function are defined in EN 15227 and the requirements specified in Clause 7 for tank wagons according to RID are not applicable to locomotives and passenger coaches.

Diagonal buffers are excluded from this European Standard.

For vehicles which have to comply with crashworthiness requirements (locomotives, cab cars or passenger coaches according to EN 15227, tank wagons according to RID), typically crashworthy buffers (buffers with a deformable housing and/or the need for an opening in their mounting flange) or buffers which form part of a combined system consisting of a special buffer (e.g. middle flange buffer) and a deformation element are used. For these types of buffers, interoperability is possible, but interchangeability with freight wagon buffers is not required, and therefore the requirements of 5.2 (Fixing on vehicle and interchangeability), 5.3 (Buffer dimensions) do not apply, those of 5.4 (mechanical characteristics of buffers) and 5.6 (marking) apply with restrictions.

## 2 Normative references

The following referenced documents are indispensable for the application 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 1369, *Founding — Magnetic particle inspection*

EN 1370, *Founding — Surface roughness inspection by visual/tactile comparators*

EN 10025-2, *Hot rolled products of structural steels — Part 2: Technical delivery conditions for non-alloy structural steels*

EN 10204:2004, *Metallic products — Types of inspection documents*

prEN 12663-2, *Railway applications — Structural requirements of railway vehicle bodies — Part 2: Freight wagons*

EN 15085-5, *Railway applications — Welding of railway vehicles and components — Part 5: Inspection, testing and documentation*

EN 15227, *Railway applications — Crashworthiness requirements for railway vehicle bodies*

EN ISO 868, *Plastics and ebonite — Determination of indentation hardness by means of a durometer (Shore hardness) (ISO 868:2003)*

ISO 37, *Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties*

ISO 48, *Rubber, vulcanized or thermoplastic — Determination of hardness (hardness between 10 IRHD and 100 IRHD)*

ISO 188, *Rubber, vulcanized or thermoplastic — Accelerated ageing and heat resistance tests*

ISO 815-1, *Rubber, vulcanized or thermoplastic — Determination of compression set — Part 1: At ambient or elevated temperatures*

ISO 815-2, *Rubber, vulcanized or thermoplastic — Determination of compression set — Part 2: At low temperatures*

### 3 Terms and definitions

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

**3.1  
buffer**  
absorber device of compressible type constituted by housing, elastic system, buffer head and flange fitted at each side of the end of wagons which have to be in contact with other interoperable rolling stock

NOTE For this European Standard, buffer means side buffer.

**3.2  
housing**  
assembly consisting of a plunger, a buffer base and an anti-rotation device but without elastic system

NOTE Casing or body are other words for housing, but only housing is used in this European Standard.

**3.3  
plunger**  
movable part of the housing consisting of a sliding and guiding tube and an active face named buffer head

**3.4  
base**  
part of the housing fixed to the wagon headstock

NOTE The base consists of a guiding tube and a supporting plate (flange)

**3.5  
anti-rotation device**  
device preventing the rotation of the plunger around the longitudinal axis of the buffer

**3.6  
elastic system**  
system allowing the reversible deflection of the plunger and absorbing energy during buffing or running operation

NOTE Spring system is another common word for elastic system.