

Železnice. Prevádzkové požiadavky na dvojkolesie v prevádzke. Údržba dvojkolesia vozidla v prevádzke a mimo vozidla.

STN EN 15313

28 2246

Railway applications - In-service wheelset operation requirements - In-service and off-vehicle wheelset maintenance

Táto norma obsahuje anglickú verziu európskej normy. This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 09/16

Obsahuje: EN 15313:2016

Oznámením tejto normy sa ruší STN EN 15313 (28 2246) z októbra 2010



EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

EN 15313

April 2016

ICS 45.040

Supersedes EN 15313:2010

English Version

Railway applications - In-service wheelset operation requirements - In-service and off-vehicle wheelset maintenance

Application ferroviaires - Exploitation des essieux en service - Maintenance des essieux en exploitation ou dénosés

Bahnanwendungen - Radsätze und Drehgestelle -Radsatzinstandhaltung

This European Standard was approved by CEN on 3 December 2015.

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 CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION COMITÉ EUROPÉEN DE NORMALISATION EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents Page						
European foreword6						
Introdu	Introduction7					
1	Scope	8				
2	Normative references	9				
3	Terms and definitions	9				
4 4.1 4.2 4.2.1 4.2.2 4.2.3	Maintenance	10 11 11 11				
4.2.4	Traceability - storage - transportation	12				
4.3	Equipment and systems					
4.4 4.5	Staff certification and competence					
5	Definition and illustrations of a boxed wheelset, its associated components and defects	16				
5.1	Definition and illustrations of a wheelset					
5.1.1 5.1.2	Wheelset					
5.1.3	Wheel					
5.1.4	Axle box					
5.2	Functional references of the rail-wheel interface					
5.2.1	Wheelset functional references	21				
5.2.2	Wheel functional references	22				
5.3	Definition and illustrations of defects	23				
6	Requirements and operations	23				
6.1	General					
6.2	Requirements					
6.2.1	In-service limit dimensions and positions					
6.2.2	Special maintenance action for freight wagon axles according to axle load					
6.2.3	Maintenance decision criteria for in-service wheels for all types of wheel					
6.2.4	Maintenance decision criteria for in-service wheels for specific wheel types					
6.2.5 6.2.6	Damage acceptance limits for axle bodies					
6.2.7	Criteria for axle box (Annex C.5)					
6.2.8	Specific requirements for tyred wheels and resilient wheels					
6.2.9	Limit value for axle wheel seat diameter					
6.3	Reprofiling operation					
6.4	Dimensions and conditions after reprofiling or an operation on the rim					
6.4.1	Front-to-front dimension "a ₂ "	35				
6.4.2	Diameter difference between wheels on the same axle	35				
6.4.3	Limit values of radial run-out as a function of the maximum operating speed authorized for the vehicle	35				
6.4.4	Wheel axial run-out as a function of the maximum operating speed authorized for the vehicle					
6.4.5	Parts of the tread that are not re-profiled					
6.4.6	Radial traces and radial defects on the internal side of the rim					
6.5	Operations, examinations and inspections					
6.5.1 6.5.2	General	36				

6.5.3	Detection of thermal damage on the wheel rim or tyre	
6.5.4	Detection of wheel tread roll-over	
6.5.5	Detection of damage to chamfered corner and flange	
6.5.6	Detection of damage resulting from identification markings	
6.5.7	Detection of defects on the external and internal face of the rim	
6.5.8	Verification of web integrity	
6.5.9	Verification of hub integrity	
6.5.10	Verification of rim integrity - Detection of deep sub-surface tread defects	
6.5.11	Detection of thermal defects on the web of a wheel used as a braking surface	
6.5.12	Detection of overheating affecting the wheel rim-web transition on monobloc wheels	
6.5.13	Verification of axle surface integrity	
	Detection of damage caused by corrosion	
6.5.15		
	Detection of circumferential defects in a singular section of the circumference	
6.5.17	i U	
6.5.18	Detection of longitudinal defects on axles	
6.5.19	Detection of damage in interference fit zones	
6.5.20		
6.5.21	Lubrication operation	
6.5.23		
6.5.24		
6.6	Requirements for additional maintenance equipment and operations	
0.0		
7	In-service boxed wheelset maintenance	
7.1	Maintenance plan	
7.2	Wheelset protection during vehicle and bogie cleaning	42
8	Off-vehicle wheelset maintenance	42
8.1	Maintenance plan	
8.2	Key operations for off-vehicle wheelset maintenance	
8.3	Off-vehicle boxed wheelset cleaning	
8.4	NDT Interval	
9	Action to be taken on any wheelset after an incident in service or when not covered by the maintenance plan	4.4
9.1	Wheelset bearings subject to water ingress	44 11
9.2	Wheelsets having been subjected to a short circuit current (e.g. from falling overhead line	++
3.2	equipment, etc.)	11
9.3	Detection by a trackside facility of a wheel circularity defect	
9.4	Wheelsets loaded over the allowed limit	
9.5	Hot axle box detection	
9.5.1	General	
9.5.2	Technical procedure	
9.6	Derailment	
9.7	Head-on collision	
9.8	Lubricant leakage or loss from the axle box	
9.9	Brake incident (detection of seized brake or discoloration)	
9.10	Reporting after detection of a wheelset irregularity outside the maintenance plan	
10	Equipment not subject to Directive 2008/57/EC	16
11	Summary table of requirements of this standard	
	A (normative) Minimum database content for freight wagon wheelset traceability	
A.1	Data categories for storage time	
A.2	Minimum data to be collected	
A.2.1	Boxed wheelset	
A.2.2	Wheelset axle	
A.2.3	Wheels	
A.2.4	Bearings	
A.2.5	Medium and heavy wheelset maintenance	51

A.2.6	Vehicle in which the boxed wheelset is mounted (not applicable for bogies with variable	
	gauge) and in-service incidents (since applying traceability system)	
A.3	Measures to be applied resulting from lack of traceability	. 52
Annex	B (informative) Database content for the tractability of wheelsets of vehicles in the scope	
	of TSI "Rolling stock - Locomotive and passenger rated vehicles" (TSI Loc & Pas)	. 54
B.1	Data categories for storage time	. 54
B.2	Minimum data to be collected	. 54
B.2.1	Boxed wheelset	. 54
B.2.2	Axle	. 56
B.2.3	Wheels	. 57
B.2.4	Bearings	. 58
B.2.5	Medium and heavy wheelset maintenance	. 58
B.2.6	Vehicle in which the boxed wheelset is mounted (not applicable for bogies with variable	
	gauge) and in-service incidents (since applying traceability system)	. 59
B.3	Measures to be applied resulting from lack of traceability	
	C (normative) Definition and illustration of defects	
C.1	General	
C.2	Defects for all types of wheel	
C.2.1	Wheel flat	
C.2.2	Metal build-up	
C.2.3	Shelling, cavities	
C.2.4	Scaling	
C.2.5	Tread indentation	
C.2.6	Isolated transverse cracking	
C.2.7	Circularity defect	
C.2.8	Spalling (thermal effects due to tread braking)	
C.2.9	Rolling contact fatigue	
C.2.10	Thermal cracks	
	Wheel tread roll-over	
	Damage to chamfered corner	. 70
C.2.13	Wheel tread – grooves and channels (or smooth edged circumferential grooves and	
	sharp edged circumferential fluting)	
	False flange	
	Damage on the flange	
C.2.16	Sharp-edged radial marks and radial defects on the internal face of the rim (FIJ)	. 75
	Damage resulting from identification markings	
	Damage from lathe driving tools	
C.2.19	Sharp-edged circumferential defects on the web or wheel centre	. 77
C.2.20	Sharp-edged radial defect on the web	. 78
C.2.21	Wheel web hole defects	. 78
C.2.22	Cracks in the wheel hub	. 79
C.3	Defects specific to wheel types	. 79
C.3.1	Deep sub-surface tread defect on monobloc wheels	. 79
C.3.2	Wheel web defects on monobloc wheels	. 80
C.3.3	Exceptional thermomechanical stressing in tyred wheels	. 82
C.4	Axle defects	. 82
C.4.1	Axle protection defect - Damage on the painting/coating	. 82
C.4.2	Corrosion	
C.4.3	Circumferential defects	. 84
C.4.4	Notches and impact damage	
C.4.5	Longitudinal defects	
C.4.6	Damage in the interference fit zones	
C.5	Axle box defects	
C.6	Wheelset defects	
C.6.1	General	
C.6.2	Wheel distortion	
C.6.3	In service axial or angular movement of a wheel or of one of the other components	
C.6.4	Bent axle	

Anne	ex D (normative) Freight stock	92
Anne	ex E (informative) Rim size without roll-over for equipment not subject to Directive 2008/57/EC	93
Anne	ex F (normative) Definitions of Type A and B axles	94
Anne	ex G (informative) Permissible circularity defects	97
	ex H (informative) Tyred wheels and resilient wheels	
H.1	General	
H.2 H.2.1	Marking of tyred wheels and resilient wheels	
H.2.2		
H.3	Defects specific to tyred wheels	
H.4	Verification of the electrical resistance during medium and heavy maintenance	
Anne	ex I (normative) Reference images for axle surface condition limits for off vehicle wheelset	
	maintenance	
I.1	General	
1.2	Local and severe defect	
1.3	Large and heavily corroded areas, strongly and uniformly pitted surface	
1.4	Corrosion defects in abutment area and transition radii	104
Anne	ex J (informative) NDT interval	105
J.1	General	105
J.2	Axle	
J.3	Wheel	105
Anne	ex K (informative) Summary of the requirements of this standard for in-service boxed wheelsets	400
Anne	ex L (informative) Characteristics of narrow gauge wheelsets	108
Anne	ex M (informative) Characteristics of Spanish and Portuguese gauge wheelsets	109
Anne	x N (informative) Characteristics of Finnish and Baltic Country Gauge Wheelsets	110
Anne	ex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2008/57/EC aimed to be covered	111
D:LI:		
RIDIIG	ography	114

European foreword

This document (EN 15313:2016) 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, by October 2016 at the latest, and conflicting national standards shall be withdrawn at the latest by October 2016.

Attention is drawn to the possibility that some of the elements of this document may be the subject of intellectual property or similar rights. CEN and CENELEC shall not be held responsible for not having identified such property rights and notifying of their existence.

This document supersedes EN 15313:2010.

This document has been prepared under a mandate given to CEN 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.

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

Introduction

The objectives of this amendment to EN 15313:2010 are to:

- Incorporate the appropriate results of the ERA TF "Maintenance of freight wagons" established following the Viareggio accident of June 2009:
 - Common criteria for the inspection of freight wagon axles (European Visual Inspection Catalogue) (see 6.5.13.2);
 - A system to ensure the traceability of in-service wagon axles (see 4.2.4.3.2 and Annex A);
 - Specific maintenance action according to axle load (see 6.2.2);
- Improve the standard in the light of experience acquired during its application;
- Resolve the outstanding issues from the "Comments Resolution Meeting" and the Formal Voting process, and in particular the maintenance action to be taken for axles loaded over the allowed limit (see 9.4);
- Recommend the use of a traceability system for in-service locomotive and passenger vehicle axles based on that for freight wagons (see 4.2.4.3.3 and Annex B);
- Provide requirements for tyred wheels and resilient wheels (see 6.2.8).

1 Scope

To ensure safety and interoperability, this Standard gives:

- the limits for in-service and off-vehicle wheelsets;
- the operations to be carried out for which the specific values (and/or criteria) remain to be defined in the maintenance plan.

This European Standard applies to wheelsets and axle boxes complying with the following European Standards:

- EN 13103, EN 13104;
- EN 13260, EN 13261, EN 13262;
- EN 13979-1;
- EN 13715;
- EN 13749.

that comprise:

- the axle mounted with wheel diameters greater than or equal to 330 mm;
- axle boxes with bearings and grease.

This European Standard is also applicable to wheelsets:

- fitted with brake discs, final drive, transmission or noise-damping systems, as appropriate;
- not complying with the above European Standards, but complying with the international requirements in force, for example in UIC leaflets, before the approval of these standards;
- with tyred wheels;
- with resilient wheels.

For equipment not covered by Directive 2008/57/EC, this European Standard may be applied, noting that different values may be used.

All dimensions in this Standard are in millimetres (mm).

It is necessary to describe in a specific document the tasks to be performed in order to maintain wheelsets within the limits defined therein.

NOTE The specific values and criteria are defined in an appropriate maintenance plan.

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 13260, Railway applications — Wheelsets and bogies — Wheelsets — Product requirements

EN 13261, Railway applications — Wheelsets and bogies — Axles — Product requirements

EN 13262, Railway applications — Wheelsets and bogies — Wheels — Product requirements

EN 13715, Railway applications — Wheelsets and bogies — Wheels — Tread profile

EN 13979-1:2003+A2:2011, Railway applications — Wheelsets and bogies — Monobloc wheels — Technical approval procedure — Part 1: Forged and rolled wheels

EN 15085-2, Railway applications. Welding of railway vehicles and components — Part 2: Quality requirements and certification of welding manufacturer

EN ISO 9712, Non-destructive testing — Qualification and certification of NDT personnel (ISO 9712)

EN ISO 9934-1, Non-destructive testing — Magnetic particle testing — Part 1: General principles (ISO 9934-1:)

EN ISO 9934-2, Non-destructive testing — Magnetic particle testing — Part 2: Detection media (ISO 9934-2:)

EN ISO 9934-3, Non-destructive testing — Magnetic particle testing — Part 3: Equipment. (ISO 9934-3:)

NOTE A standard relating to NDT in railway applications is currently being prepared and may be used as a reference in NDT performed on wheelsets following its publication.

koniec náhľadu – text ďalej pokračuje v platenej verzii STN