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PÖÖRDVANKRID. MONOPLOKKRATTAD. TEHNILISE
HEAKSKIIDU PROTSEDuur. OSA 1: SEPISTATUD JA
VALTSITUD RATTAD

Railway applications - Wheelsets and bogies -
Monobloc Wheels - Technical approval procedure -
Part 1: Forged and rolled wheels

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 13979-1:2023 sisaldab Euroopa standardi EN 13979-1:2023 ingliskeelset teksti. Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 20.12.2023. Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	This Estonian standard EVS-EN 13979-1:2023 consists of the English text of the European standard EN 13979-1:2023. This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. Date of Availability of the European standard is 20.12.2023. The standard is available from the Estonian Centre for Standardisation and Accreditation.
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English Version

**Railway applications - Wheelsets and bogies - Monobloc
Wheels - Technical approval procedure - Part 1: Forged
and rolled wheels**

Applications ferroviaires - Essieux montés et bogies -
Roues monobloc - Procédure d'évaluation de la
conception - Partie 1 : Roues forgées et laminées

Bahnanwendungen - Radsätze und Drehgestelle -
Vollräder - Technische Zulassungsverfahren - Teil 1:
Geschmiedete und gewalzte Räder

This European Standard was approved by CEN on 20 November 2023.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents

Page

European foreword.....	7
Introduction	8
1 Scope.....	9
2 Normative references.....	9
3 Terms and definitions	9
4 Parameters for the definition of the application covered.....	10
4.1 General.....	10
4.2 Geometric parameters for interchangeability	10
4.2.1 General.....	10
4.2.2 Functional requirements.....	10
4.2.3 Assembly requirements.....	10
4.2.4 Maintenance requirements	11
4.3 Parameters for thermomechanical assessment of tread-braked wheels.....	11
4.3.1 Geometrical requirements for tread-braked wheels.....	11
4.3.2 Drag braking or consecutive stop braking.....	12
4.3.3 Accidental drag braking incident.....	13
4.4 Mechanical assessment parameters	13
4.5 Acoustic assessment parameters	14
5 Description of the wheel, the design of which shall be assessed	14
6 Assessment of geometric interchangeability.....	14
7 Assessment of thermomechanical behaviour.....	14
7.1 General procedure.....	14
7.2 First stage – Braking bench test.....	15
7.2.1 Test procedure.....	15
7.2.2 Decision criteria	15
7.3 Second stage – Wheel fracture bench test.....	16
7.3.1 General.....	16
7.3.2 Test procedure.....	16
7.3.3 Decision criterion	16
7.4 Third stage – Field braking test	16
7.4.1 General.....	16
7.4.2 Test procedure.....	16
7.4.3 Decision criteria	16
8 Assessment of mechanical behaviour.....	17
8.1 General procedure.....	17
8.2 First stage – Calculation	17
8.2.1 Applied forces.....	17
8.2.2 Calculation procedure	20
8.2.3 Decision criteria	20
8.3 Second stage – Bench test.....	21
8.3.1 General.....	21
8.3.2 Definition of bench loading and the test procedure.....	21
8.3.3 Decision criteria	21

9	Assessment of acoustic behaviour.....	21
10	Technical approval.....	21
10.1	Technical approval scope and process	21
10.2	Technical approval documents	23
	Annex A (informative) Drag braking values	24
A.1	Freight wagons	24
A.2	Other types of rolling stock and specific freight wagons	24
	Annexe B Annex B (normative) Assessment of thermomechanical behaviour	25
B.1	Assessment flow chart	25
B.2	Braking bench test procedure.....	26
B.2.1	Test principle	26
B.2.2	Definition of drag braking.....	26
B.2.3	Method for measuring decision criteria.....	26
B.2.3.1	Measuring displacement.....	26
B.2.3.2	Measuring residual stresses	27
B.2.4	Tests and measurements	27
B.2.4.1	Pre-test measurements	27
B.2.4.2	Braking tests.....	27
B.2.4.3	Measurements at the end of braking cycles.....	28
B.2.5	Anomalies.....	28
B.3	Wheel fracture bench testing procedure	28
B.3.1	Test principle	28
B.3.2	Creation of residual stresses in the rim of the wheel	28
B.3.3	Pre-cracked rim	28
B.3.4	Definition of drag braking test.....	30
B.3.5	Parameters for the wheel fracture bench test	30
B.3.6	Tests and measurements	31
B.3.6.1	General	31
B.3.6.2	Pre-cracked rim	31
B.3.6.3	Wheel fracture	31
B.3.7	Anomalies.....	32
B.4	Field braking test procedure	32
B.4.1	Test principle	32
B.4.2	Definition of braking	32
B.4.3	Method for measuring decision criteria.....	33
B.4.3.1	Measuring displacement.....	33
B.4.3.2	Measuring residual stresses	33

B.4.4	Route type for testing	33
B.4.4.1	Parameters linked to the vehicle of intended application	33
B.4.4.2	Other parameters.....	34
B.4.4.3	Meteorological conditions	34
B.4.4.4	Parameters associated with the track.....	34
B.4.5	Tests and measurements	34
B.4.5.1	Pre-test measurements.....	34
B.4.5.2	Braking tests.....	34
B.4.5.3	Measurements at the end of the braking cycles.....	35
B.4.6	Anomalies	35
Annex C (normative)	Wheel profile diameter definition.....	36
C.1	General.....	36
C.2	Diameter after last reprofiling.....	36
C.3	Worn diameter	37
Annex D (normative)	Assessment of mechanical behaviour	38
D.1	Assessment flow chart.....	38
D.2	Calculation procedure in the case of exceptional load	39
D.2.1	Principle	39
D.2.2	Load.....	39
D.3	Calculation procedure for cases of fatigue load	39
D.3.1	Principle	39
D.3.2	Load.....	39
D.3.3	Method of calculation	39
Annex E (informative)	Fatigue loading for narrow gauge tracks (close to a metre)	41
Annex F (informative)	Fatigue loading for tilting trains.....	42
Annex G (normative)	Mechanical behaviour – Finite element calculation assessment	43
Annex H (informative)	Mechanical behaviour – Bench loading and test procedure	44
H.1	Principle of bench loading and test procedure	44
H.2	Definition of loads.....	44
H.2.1	General.....	44
H.2.2	Measurement of stresses during field tests.....	44
H.3	Fatigue bench test	45
H.3.1	Method 1 – Random fatigue test	45
H.3.1.1	Load matrix	45
H.3.1.2	Monitoring the bench test.....	45
H.3.1.3	Random fatigue test	46

H.3.1.4	End of test criteria	46
H.3.2	Method 2 – Single-stage fatigue test.....	46
H.3.2.1	Matrix and load spectrum.....	46
H.3.2.2	Equivalent stress.....	46
H.3.2.3	Single-stage fatigue test.....	46
H.3.2.4	Acceptance criterion.....	47
H.3.2.5	Examples of benches	47
Annex I (informative)	Assessment of acoustic behaviour.....	48
I.1	General procedure	48
I.2	Assessment procedure.....	48
I.3	Assessment criteria.....	49
I.4	Decision criterion.....	49
I.5	Assessment flow chart	50
I.6	Calculation procedure.....	50
I.6.1	General	50
I.6.2	Calculating the wheel modal basis	51
I.6.3	Defining the reference speeds	51
I.6.4	Defining the reference combined wheel-rail roughness.....	51
I.6.5	Defining the reference track model	53
I.6.6	Defining the calculation parameters.....	54
I.6.7	Calculating sound power.....	54
I.6.8	Factoring the weighted spectrum into sound power.....	55
I.6.9	Calculating the acceptance criterion	56
I.6.10	Optional calculations.....	56
I.7	Field measurement procedure	56
I.7.1	General	56
I.7.2	Environmental conditions.....	56
I.7.3	Conditions for the track.....	56
I.7.4	Conditions for the train	57
I.7.4.1	Conditions for the tread	57
I.7.4.2	Composition of train.....	57
I.7.5	Positioning the measurement points	58
I.7.6	Measurement quantities	58
I.7.7	Test procedure	58
I.7.7.1	Measuring roughness	58
I.7.7.2	Measurements trackside.....	59

I.7.8	Data processing.....	59
I.7.8.1	General.....	59
I.7.8.2	Calculating combined roughness	59
I.7.8.3	Calculating a representative quantity of sound power	59
I.7.8.4	Correcting standardized sound levels vis-à-vis a reference combined roughness.....	60
I.7.8.5	Calculating the acceptance criterion.....	60
Annex J (informative)	Ultrasonic method for determining residual stresses in the rim (non-destructive method).....	61
J.1	Procedure.....	61
J.2	Measurement uncertainty	62
J.3	Calibrations	62
J.4	Verifying measurement parameters.....	62
	Bibliography.....	63

European foreword

This document (EN 13979-1:2023) 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 June 2024, and conflicting national standards shall be withdrawn at the latest by June 2024.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 13979-1:2020.

In comparison with the previous edition, the following technical modifications have been made:

- A new link to the pre-designing state of the art methods defined by UIC (thermo-mechanical calculation);
- Some recommendations for the rim geometrical design in order to ensure sufficient material to withstand thermal loading;
- A clearer definition of the wheel homologation scope and a new definition of the process to homologate a wheel design derived from a previously homologated one (Clause 3);
- Correction of the recommended reference combined roughness spectrum representative of the different types of braking system for the acoustical assessment (Table I.1).

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Introduction

An assessment of the two following aspects is carried out before a wheel is commissioned:

- assessment of the design as described in this standard;
- assessment of the quality of the product (EN 13262:2020).

1 Scope

This document specifies a design assessment procedure for a forged and rolled monobloc wheel (RST). This assessment is carried out before the wheel is commissioned. This document specifies, in particular, the assessment to be performed in order to use wheels on a European network which, in addition, have quality requirements in conformity with those specified in EN 13262:2020.

This assessment requires that the conditions of use for the wheel are defined and this document provides a method for defining those conditions.

The assessment of the design covers four aspects:

- a geometrical aspect: to allow interchangeability of different solutions for the same application;
- a thermomechanical aspect: to manage wheel deformations and to ensure that braking will not cause wheels to fracture;
- a mechanical aspect: to ensure that no fatigue cracks occur in the wheel web and that no permanent deformation occurs under exceptional loading;
- an acoustic aspect: to ensure that the solution chosen is as good as the reference wheel.

This document does not cover assessment of the hub or the rim.

This document has been drawn up for wheels of non-powered tread-braked wheelsets and applies in full to this type of wheel. For wheels on which mounted brake discs are mounted or toothed transmission wheels or even wheels with noise reduction devices, the requirements may be amended or supplemented.

For urban railway vehicles, other standards or documents may be used.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 13103-1:2017+A1:2022, *Applications ferroviaires - Essieux montés et bogies - Partie 1: Méthode de conception des essieux-axes avec fusées extérieures*

EN 13262:2020, *Applications ferroviaires - Essieux montés et bogies - Roues - Prescriptions pour le produit*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: <https://www.electropedia.org/>
- ISO Online browsing platform: <https://www.iso.org/obp>

3.1

technical specification

document describing specific parameters and/or design assessment procedure requirements as an addition to the requirements of this document