

SVENSK STANDARD

SS-EN 13749:2021

**Järnvägar – Hjulpar och boggier – Strukturella krav och metoder
för validering av boggiramar**

**Railway applications – Wheelsets and bogies – Method of
specifying the structural requirements of bogie frames**



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Språk: engelska/English

Utgåva: 3

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Europastandarden EN 13749:2021 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 13749:2021.

Denna standard ersätter SS-EN 13749:2011, utgåva 2.

The European Standard EN 13749:2021 has the status of a Swedish Standard. This document contains the official version of EN 13749:2021.

This standard supersedes the SS-EN 13749:2011, edition 2.

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An instruction is expressed in the imperative mood and is used in order to convey an action to be performed. It can be subordinated to another provision, such as a requirement or a recommendation. It can also be used independently and is then to be regarded as a requirement.

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A statement is an expression, in the content of a document, that conveys information. A statement can express permission, possibility or capability. Permission is expressed by the auxiliary **may** (its opposite being **need not**). Possibility and capability are expressed by the auxiliary **can** (its opposite being **cannot**).

EUROPEAN STANDARD

EN 13749

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2021

ICS 45.040

Supersedes EN 13749:2011

English Version

Railway applications - Wheelsets and bogies - Method of specifying the structural requirements of bogie frames

Applications ferroviaires - Essieux montés et bogies -
Méthode pour spécifier les exigences en matière de
résistance des structures de châssis de bogie

Bahnanwendungen - Radsätze und Drehgestelle -
Festlegungsverfahren für Festigkeitsanforderungen an
Drehgestellrahmen

This European Standard was approved by CEN on 15 February 2021.

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.

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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

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European foreword

This document (EN 13749:2021) has been prepared by Technical Committee 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 September 2021, and conflicting national standards shall be withdrawn at the latest by September 2021.

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 13749:2011.

The general scope and requirements of EN 13749 are unaltered by this revision. Changes were necessary to mainly correct errors in some formulae and textural corrections in line with the CEN rules.

Informative annexes in this standard give additional information that is not mandatory but intended to assist the understanding or use of the document.

NOTE Informative annexes sometimes contain optional requirements. For instance, a test method that is optional, or expressed as an example, contains requirements but there is no need to comply with these requirements to claim compliance with the document.

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 2016/797/EC.

For relationship with EU Directive 2016/797/EC, see informative Annex ZA, which is an integral part of this document.

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, Turkey and the United Kingdom.

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1 Scope

This document specifies the method to be followed to achieve a satisfactory design of bogie frames and includes design procedures, assessment methods, verification and manufacturing quality requirements. It is limited to the structural requirements of bogie frames including bolsters and axlebox housings. For the purpose of this document, these terms are taken to include all functional attachments, e.g. damper brackets.

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 15085-1:2007+A1:2013, *Railway applications - Welding of railway vehicles and components - Part 1: General*

EN 15085-2:2007, *Railway applications - Welding of railway vehicles and components - Part 2: Quality requirements and certification of welding manufacturer*

EN 15085-3:2007, *Railway applications - Welding of railway vehicles and components - Part 3: Design requirements*

EN 15085-4:2007, *Railway applications - Welding of railway vehicles and components - Part 4: Production requirements*

EN 15085-5:2007, *Railway applications - Welding of railway vehicles and components - Part 5: Inspection, testing and documentation*

EN 15663:2017+A1:2018, *Railway applications - Vehicle reference masses*

EN 15827:2011, *Railway applications - Requirements for bogies and running gears*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 15827:2011 and the following apply.

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

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

NOTE Annex A identifies the symbols, units, coordinate system and bogie categories used in the informative annexes to this European standard.

3.1

axlebox

assembly comprising the box housing, rolling bearings, sealing and grease

3.2

bogie frame

load-bearing structure generally located between primary and secondary suspension

3.3

bolster

transverse load-bearing structure between vehicle body and bogie frame

3.4

static force

force which is constant with time

Note 1 to entry: Force due to gravity is an example of static force.

3.5

quasi-static force

force, which changes with time at a rate which does not cause dynamic excitation

Note 1 to entry: Quasi-static force might remain constant for limited periods.

3.6

dynamic force

transient, impulsive or continuous force, uniform or random, that changes with time at a rate that causes dynamic excitation

3.7

load case

set of loads or combinations of loads that represents a loading condition to which the structure or component is subjected

3.8

exceptional load case

extreme load case representing the maximum load at which full serviceability is to be maintained and used for assessment against static material properties

3.9

fatigue load case

repetitive load case used for assessment against fatigue strength

3.10

safety factor

factor applied during the strength assessment which makes an allowance for a combination of the uncertainties and the safety criticality

3.11

sideframe

longitudinal structural member of the bogie frame

3.12

primary suspension

suspension system consisting of the resilient elements (and associated connecting and locating parts) generally located between the axlebox and bogie frame

3.13

secondary suspension

suspension system consisting of the resilient elements (and associated connecting and locating parts) generally located between the bogie frame and vehicle body or bolster