Tabelle ZA.2 — Zusammenhang zwischen dieser Europäischen Norm, der Verordnung (EU) Nr. 1302/2014 der Kommission vom 18. November 2014 über eine technische Spezifikation für die Interoperabilität des Teilsystems „Fahrzeuge — Lokomotiven und Personenwagen" des Eisenbahnsystems in der Europäischen Union (veröffentlicht im Amtsblatt L 356, 12.12.2014, S. 228) und der Richtlinie 2016/797/EC

Abschnitt(e)/ Unter-abschnitt(e) dieser Europäischen Norm	Kapitel/§/Anhänge der Technischen Spezifikation für Interoperabilität (TSI)	Entsprechender Text, Artikel/§/ Anhänge der Richtlinie 2016/797/EU	Anmerkungen
Abschnitt 1 bis einschließlich Abschnitt 7 Anhang A Anhang B C.1, C.2, C4 Anhang D Anhang E F.1, F.2, F4 G.1, G.2, G4 dieser Europäischen Norm sind anwendbar	4 Merkmale des Teilsystems „Fahrzeuge" 4.2 Funktionale und technische Spezifikationen des Teilsystems § 4.2.3.5.1 Strukturelle Konstruktion des Drehgestellrahmens §4.2.3.1 Begrenzungslinien §4.2.3.6.1. Konstruktion des Drehgestells §4.2.6.1 Umgebungsbedingungen 6 Konformitätsbewertung und EG-Prüfung §6.2.2.1 Festigkeit der Einheit §6.2.2.1 Umgebungsbedingungen Anhang H Assessment des Teilsystems „Fahrzeuge — Lokomotiven und Personenwagen Anhang J Technische Spezifikation für die TSI	Anhang III, Grundlegende Anforderungen, 1 Allgemeine Anforderungen 1.1 Sicherheit 1.1.1, 1.1.2, 1.1.3 1.5 Technische Kompatibilität 2 Besondere Anforderungen an jedes Teilsystem 2.4 Fahrzeuge 2.4.2 Zuverlässigkeit und Verfügbarkeit 2.4.3 Technische Kompatibilität § 3	Diese TSI Anhang J verweist in ihrem Unterabschnitt 4.2.3.3.5.1 auf die EN 13749:2011, den Unterabschnitt 6.2 und den Anhang C. Daher sind diese Teile der EN 13749:2011 verbindlich. Sie entsprechen jeweils dem folgenden Teil dieser neuen Version der EN 13749. Abschnitt 6.2 und Anhang C.

WARNHINWEIS 1 — Die Konformitätsvermutung diese Europäische Norm bleibt nur so lange gültig, wie ein Verweis auf das Amtsblatt der Europäischen Union besteht. Die Benutzer dieser Norm sollten regelmäßig die neueste Liste einsehen, die im Amtsblatt der Europäischen Union veröffentlicht sind..

WARNHINWEIS 2 — Für Produkte, die in den Anwendungsbereich dieser Norm fallen, können weitere Anforderungen und weitere EU-Richtlinien gelten.

Literaturhinweise

[1] EN 12663-1:2010+A1:2014, *Bahnanwendungen — Festigkeitsanforderungen an Wagenkästen von Schienenfahrzeugen — Teil 1: Lokomotiven und Personenfahrzeuge (und alternatives Verfahren für Güterwagen)*

[2] EN 12663-2:2010, *Bahnanwendungen — Festigkeitsanforderungen an Wagenkästen von Schienenfahrzeugen — Teil 2: Güterwagen*

[3] EN 13103-1:2017, *Bahnanwendungen — Radsätze und Drehgestelle — Teil 1: Konstruktionsleitfaden für außengelagerte Radsatzwellen*

[4] EN 13979-1:2019, *Bahnanwendungen — Radsätze und Drehgestelle — Vollräder — Technische Zulassungsverfahren — Teil 1: Geschmiedete und gewalzte Räder*

[5] EN 50125-1: *Bahnanwendungen — Umweltbedingungen für Betriebsmittel — Teil 1: Betriebsmittel auf Bahnfahrzeugen*

[6] NF F 01 301, *Matérial roulant ferroviaire; Masses et états de charge des véhicules moteurs et des véhicules remorqués à voyageurs*

[7] Railway Group Standard GM/RT2100, *'Structural Requirements for Railway Vehicles',* Issue 3, April 2000, Safety and Standards Directorate, Railtrack

[8] UIC Leaflet 515*, Coaches — Running gear*

[9] UIC Leaflet 510-3, *Wagons — Strength testing of 2 and 3-axle bogies on test rig*

[10] UIC Leaflet 615-4, *Motive power units — Bogies and running gear — Bogie frame structure strength tests*

[11] Engineering Standard E6325 A1*. 'Passenger Rolling Stock Loadings',* London Underground Limited

[12] Specification of Société des Transports Intercommunaux Bruxelles/Maatschappij voor het Intercommunaal Vervoer te Brussel (STIB/MIVB)

[13] VDV 152, *Empfehlungen für die Festigkeitsauslegung von Personenfahrzeugen nach BOStrab*

[14] EN 12082, *Bahnanwendungen — Radsatzlager — Prüfung des Leistungsvermögens*

[15] EN ISO 6892-1, *Metallische Werkstoffe — Zugversuch — Teil 1: Prüfverfahren bei Raumtemperatur (ISO 6892-1)*

– Entwurf –

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 13749

November 2019

ICS 45.040

Will supersede 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 draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 256.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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Ref. No. prEN 13749:2019 E

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European foreword

This document (prEN 13749:2019) has been prepared by Technical Committee 256 “Railway applications”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 13749:2011.

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.

The general scope and requirements of EN 13749 are unaltered by this revision. Changes were necessary to correct an error in the Annex G Formula (G.3) 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 can contain optional requirements. For instance, a test method that is optional, or expressed as an example, can contain requirements but there is no need to comply with these requirements to claim compliance with the document.

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 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 15085-1, *Railway applications — Welding of railway vehicles and components — Part 1: General*

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

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

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

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

EN 15663, *Railway applications — Definition of 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.

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

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

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

3.14
track testing
performing of tests under expected service conditions, on railway infrastructure that represents the actual operating environment, and monitoring and recording the responses

3.15
validation
process of demonstrating by analysis and/or test that the system under consideration meets in all respects the technical specification, including requirements due to regulations, for that system

3.16
verification
process of demonstrating by comparison or testing that an analytical result or estimated value is of an acceptable level of accuracy

4 Technical specification

4.1 Scope

The technical specification shall consist of all the information describing the functional requirements of the bogie frame and the interfaces with associated components and assemblies. It shall also comprise, as a minimum, the general requirements of use, the conditions associated with the vehicle equipped with the bogies, the operating characteristics, the conditions associated with maintenance and any other particular requirements.

The technical specification shall also identify all appropriate mandatory regulations and define the parts of the validation and acceptance procedure (Clause 6) and the quality requirements (Clause 7), which are specifically required, and the way in which evidence to show that the requirements have been met is to be provided.

NOTE If the customer is unable to define the technical specification completely the supplier can propose a technical specification and submit it to the customer (and the approval authority where relevant) for agreement.

4.2 General requirements

The technical specification shall indicate the type of bogie required in terms of its use. It shall also indicate the intended life of the bogie, its average annual distance run and its total distance run and all the information that is applicable to a bogie frame associated with the Essential Requirements of a TSI as indicated in EN 15827. Information that is particularly relevant to bogie frame design is indicated in the following clauses.