



BSI Standards Publication

Railway applications — Wheelsets and bogies

Part 2: Design method for axles with internal journals

National foreword

This Published Document is the UK implementation of CEN/TS 13103-2:2020.

The UK participation in its preparation was entrusted to Technical Committee RAE/3/-/1, Railway Applications - Wheels and Wheelsets.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Published by BSI Standards Limited 2020

ISBN 978 0 580 90807 1

ICS 45.040

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This Published Document was published under the authority of the Standards Policy and Strategy Committee on 30 June 2020.

Amendments/corrigenda issued since publication

Date	Text affected
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TECHNICAL SPECIFICATION
 SPÉCIFICATION TECHNIQUE
 TECHNISCHE SPEZIFIKATION

CEN/TS 13103-2

June 2020

ICS 45.040

English Version

**Railway applications - Wheelsets and bogies - Part 2:
 Design method for axles with internal journals**

Applications ferroviaires - Essieux montés et bogies -
 Partie 2: Méthode de conception pour les essieux-axes
 à fusées intérieures

Bahnanwendungen - Radsätze und Bremsgestelle - Teil
 2: Konstruktionsleitfaden für inwendig gelagerte
 Radsatzwellen

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European foreword

This document (CEN/TS 13103-2:2020) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

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1 Scope

This document:

- defines the forces and moments to be taken into account with reference to masses, traction and braking conditions;
- gives the stress calculation method for axles with inboard axle journals;
- specifies the maximum permissible stresses to be assumed in calculations for steel grade EA1N, EA1T and EA4T defined in EN 13261;
- describes the method for determination of the maximum permissible stresses for other steel grades;
- determines the diameters for the various sections of the axle and recommends the preferred shapes and transitions to ensure adequate service performance.

This document is applicable for axles defined in EN 13261.

This document applies only for heavy rail vehicles.

The calculation of wheelsets for special applications (e.g. railbound construction and maintenance machines) can be made according to this document only for the load cases of free-rolling and rolling in train formation.

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

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

EN 15313, *Railway applications - In-service wheelset operation requirements - In-service and off-vehicle wheelset maintenance*

EN 15663, *Railway applications - Definition of vehicle reference masses*