
**Railway infrastructure — Rail
fastening systems —**

Part 2:
**Test method for longitudinal rail
restraint**

Infrastructure ferroviaire — Systèmes de fixation du rail —

*Partie 2: Méthode d'essai pour la détermination de résistance
longitudinale au glissement*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 269, *Railway applications*, Subcommittee SC 1, *Infrastructure*.

A list of all parts in the ISO 22074 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Railway infrastructure — Rail fastening systems —

Part 2:

Test method for longitudinal rail restraint

1 Scope

This document specifies the laboratory test procedure to determine:

- a) the maximum longitudinal force that can be applied to a rail, secured to a sleeper, bearer or element of ballastless track by a rail fastening assembly, without non-elastic displacement of the rail occurring, or the longitudinal stiffness at a specified longitudinal displacement of a specimen of embedded rail with an adhesive fastening system, and for any type of fastening;
- b) the shear displacement and slip data required for track-bridge interaction calculations.

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.

ISO 22074-1, *Railway infrastructure — Rail fastening systems — Part 1: Vocabulary*

ISO 7500-1:2018, *Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system*

ISO 9513:2012, *Metallic materials — Calibration of extensometer systems used in uniaxial testing*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 22074-1 apply.

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

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

4 Symbols

Symbol	Description	Unit
D_1	maximum longitudinal displacement of rail during each cycle of loading	mm
D_2	residual longitudinal displacement of rail after removal of load	mm
D_3	elastic longitudinal displacement of rail prior to slip	mm
D_r	maximum longitudinal displacement of embedded rail with adhesive fastening system	mm
F	maximum axial load on the rail without non-elastic displacement occurring	kN
F_{slip}	axial load at which gross slip occurs	kN
k_L	longitudinal stiffness of embedded rail with adhesive fastening system	kN/mm per m