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Railway applications — Suspension components —

Part 1: Characteristics and test methods for elastomer-mechanical parts

Applications ferroviaires — Pièces de suspension —

Partie 1: Caractéristiques et méthodes d'essai pour les pièces en caoutchouc et les pièces en caoutchouc-métal

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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).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 2, *Rolling stock*.

A list of all parts in the ISO 22749 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.

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Introduction

This document is based on EN 13913.

Designing an elastomer-mechanical part requires knowledge of the mechanical system of which it forms part. Therefore, specific characteristics are needed for each case, which only the customer can specify.

This document is the result of the studies and research to improve the performances and quality of elastomer-mechanical parts in order to meet the requirements of railway rolling stock.

This document is designed for railway operators, manufacturers and equipment suppliers of the railway industry as well as for the suppliers of elastomer-mechanical parts.

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Railway applications — Suspension components —

Part 1: Characteristics and test methods for elastomer-mechanical parts

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1 Scope

This document applies to elastomer-mechanical parts designed to be fitted on railway vehicles and similar vehicles running on dedicated tracks with permanent guide systems, whatever the type of rail and the running surface.

Typical applications of the elastomer-mechanical parts include:

— vehicle suspension systems;

— equipment mounting systems;

— joints (e.g. end-mountings of dampers, rubber-based bearings, elastomer-mechanical parts used on mechanical couplings);

— limit stops.

These parts can be:

— made entirely of elastomer, operating on their own or in combination with other elastic parts;

— made up of elastomer and other materials, adherent together or not.

This document specifies characteristics that rubber and rubber to metal parts are to achieve, together with applicable inspection and test methods to be carried out for verification.

This document does not apply to:

— rubber diaphragms for pneumatic suspension springs;

— elastic parts of buffing and drawgear springs;

— diaphragms, bellows and seals;

— hoses and tubings;

— transmission belts.

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 188, *Rubber, vulcanized or thermoplastic — Accelerated ageing and heat resistance tests*

ISO 1431-1, *Rubber, vulcanized or thermoplastic — Resistance to ozone cracking — Part 1: Static and dynamic strain testing*

ISO 1817, *Rubber, vulcanized or thermoplastic — Determination of the effects of liquids*

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ISO 2781, *Rubber, vulcanized or thermoplastic — Determination of density*

ISO 4649, *Rubber, vulcanized or thermoplastic — Determination of abrasion resistance using a rotating cylindrical drum device*

ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests*

ISO 23529, *Rubber — General procedures for preparing and conditioning test pieces for physical test methods*

ISO 80000-3, *Quantities and units — Part 3: Space and time*

ISO 80000-4, *Quantities and units — Part 4: Mechanics*

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:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
component
elastomer-mechanical part

3.2
static creep
displacement increase of a component subjected to a constant static force, occurring after a specified period of time

3.3
dynamic creep
displacement increase of a component subjected to a dynamic force oscillating about a constant static force, occurring after a specified period of time

3.4
static relaxation
force decrease of a component subjected to a constant displacement, occurring after a specified period of time

3.5
dynamic relaxation
force decrease of a component submitted to a dynamic displacement oscillating about a constant static displacement, occurring after a specified period of time

3.6
phase angle
difference in phase between the transmitted excitation and the response at a specific sinusoidal amplitude and frequency

4 Symbols and abbreviated terms

The units presented in ISO 80000-3 and ISO 80000-4 shall be used for the symbols in Table 1.

Decimal multiples and submultiples of units defined below can be used.

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