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Railway applications — Suspension components —

Part 2: Approval procedure and quality monitoring for elastomer-mechanical parts

Applications ferroviaires — Pièces de suspension —

Partie 2: Procédure d'homologation et surveillance de la qualité des pièces mécaniques à base d'élastomère

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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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.

Introduction

This document is based on sections of EN 13913 related to approval procedures and quality monitoring.

Designing an elastomer-mechanical part requires knowledge of the mechanical system of which it forms part. Specific characteristics are therefore 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.

Railway applications — Suspension components —

Part 2: Approval procedure and quality monitoring for elastomer-mechanical parts

1 Scope

This document applies to elastomer-mechanical parts, as defined in ISO 22749-1.

This document specifies:

— approval procedure to be implemented by the customer;

— guidelines for qualification of the product with specified requirements;

— quality monitoring of rubber and rubber to metal parts in manufacture.

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 9000, *Quality management systems — Fundamentals and vocabulary*

3 Terms and definitions

No terms and definitions are listed in this document.

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

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

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

4 Definition documents

4.1 General

The component shall be defined in a technical specification which consists of the documents described in 4.2 and 4.3.

4.2 Documents to be provided by the customer

The customer shall provide a technical specification which includes the following elements:

a) interface drawing (possibly, a general assembly drawing of the mechanical system or a sub-assembly drawing) showing at least:

   — space envelope;

   — functional dimensions and tolerances;

b) technical data detailing at least:

   — conditions of utilisation (forces, movements, temperatures, assembly, environment, maintenance, storage, etc.);

   — requirements (characteristics of the product, tolerances and expected service life);

c) approval procedure and type test requirements (for example, characteristics to be checked and tests to be carried out, order of tests and checks).

4.3 Documents to be provided by the supplier

The supplier shall provide documentation describing the component and detailing:

— information required for use of the component (for example fitting, maintenance and storage instructions);

— definition drawing including overall dimensions and tolerances;

— any information required by the technical specification of the customer (e.g. qualification test procedure, qualification test report, quality certificate).

5 Traceability, qualification and quality surveillance

5.1 Traceability

Suppliers shall establish an identification and traceability system of the product according to definitions given in ISO 9000.

Traceability shall be agreed between the involved parties.

5.2 Supplier production plant qualification

The various manufacturing operations of the component, including the manufacturing of its component parts, shall only be performed by qualified suppliers, according to the definition given in ISO 9000, and possessing a certified quality assurance system according to related quality assurance standards.

5.3 Approval and qualification of the product

5.3.1 Approval

Before it is fitted to a vehicle, a component should be approved by the customer, in accordance with the applicable quality standard for the product.

The technical specification should mention the relevant necessary quality standards and approvals.

5.3.2 Qualification

5.3.2.1 General

Before being used on a vehicle, every new component (of a new or known supplier), or every existing component used for a new application (new technical specification) shall be qualified.

The characteristics and properties of the component shall be verified (type/qualification test) according to the customer's requirements.

The extent of testing shall be defined in the technical specification and agreed between customer and supplier.

5.3.2.2 Test pieces

The definition and the preparation of test pieces are defined in ISO 22749-1.

All components taken as test pieces for qualification tests shall be taken from the same production batch and delivered together.

Test pieces shall be representative of the production technology, the materials employed and all the characteristics for which qualification is requested.

The number of test samples and the distribution of tests and inspections on tests samples, shall be specified in the technical specification.

5.3.2.3 Qualification procedure

The qualification procedure consists of verification of the conformity of the product to the stated requirements.

All the characteristics specified in the technical specification shall be verified on the product submitted for qualification.

The qualification procedure of the component, with the exception of those supplied by a new supplier, can be simplified in accordance with the quality system in force with the supplier.

The verification of known characteristics can be optional.

A simplified qualification process shall, in any case, be subject to a separate agreement between customer and supplier.

The checks shall be performed in accordance with the requirements of the technical specification.

The laboratory/laboratories that perform the qualification tests shall be designated after agreement of the customer.