EESTI STANDARD EVS-EN 13597:2003

Railway applications - Rubber suspension components - Rubber diaphragms for pneumatic suspension springs

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EESTI STANDARDIKESKUS

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Käesolev Eesti standard EVS-EN 13597:2003 sisaldab Euroopa standardi EN 13597:2003 ingliskeelset teksti. Käesolev dokument on jõustatud 15.04.2003 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 13597:2003 consists of the English text of the European standard EN 13597:2003. This document is endorsed on 15.04.2003 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

NATIONAL FOREWORD

Käsitlusala: This standard defines :- characteristics that suspension diaphragms shall achieve, together with applicable inspection and test methods to be carried out for verification ; - approval procedure to be implemented by the customer ; - guidelines for qualification of the product with specified requirements ; - quality monitoring of diaphragms in manufacture ; - supply requirements	**Scope:** This standard defines :- characteristics that suspension diaphragms shall achieve, together with applicable inspection and test methods to be carried out for verification ; - approval procedure to be implemented by the customer ; - guidelines for qualification of the product with specified requirements ; - quality monitoring of diaphragms in manufacture ; - supply requirements

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Võtmesõnad: railroad cars, railroad vehicles, railway appli, railway vehicle components, railway vehicles, railways, resilience, rigidity, rubber, shock absorbing springs, specification (approval), specifications, springiness, springs, steel springs, stiffness, testing, trainings

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English version

Railway applications - Rubber suspension components - Rubber diaphragms for pneumatic suspension springs

Applications ferroviaires - Pièces de suspension à base d'élastomère - Membranes à base d'élastomère pour ressorts pneumatiques de suspension

Bahnanwendungen - Federungselemente aus Elastomer - Membranen aus Elastomer für pneumatische Tragfedern

This European Standard was approved by CEN on 21 November 2002.

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This European Standard exists 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
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Contents

Foreword

This document (EN 13597:2003) has been prepared by Technical Committee CEN/TC 256 "Railway applications", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2003, and conflicting national standards shall be withdrawn at the latest by August 2003.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association:

— Council Directive 96/48/EEC of 23 July 1996 on interoperability of the European high-speed train network [1)] ;

— Council Directive 93/38/EEC of 14 June 1993 coordinating the procurement procedures of entities operating in the water, energy, transport and telecommunications sectors [2)] ;

— Council Directive 91/440/EEC of 29 July 1991 on the development of the community's railways. [3)]

The annexes B and D are normative.

The annexes A and C and E are informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

1) Official Journal of the European Communities N° L 235 of 17.09.96

2) Official Journal of the European Communities N° L 199 of 09.08.93

3) Official Journal of the European Communities N° L 237 of 24.08.91

Introduction

Designing a suspension diaphragm 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.

The requirements of the European Standard should operate in conjunction with the conditions for the supply of air spring suspension diaphragms.

This European Standard is the result of studies and research to improve the performances and quality of rubber diaphragms for pneumatic suspension springs in order to meet the requirements of railway rolling stock.

This European Standard is designed for the railway operators, the manufacturers and equipment suppliers of the railway industry as well as for the suppliers of rubber diaphragms for pneumatic suspensions springs.

1 Scope

This European Standard specifies:

— characteristics that suspension diaphragms achieves, together with applicable inspection and test methods to be carried out for verification;

— approval procedure to be implemented by the customer;

— guidelines for qualification of the product with specified requirements;

— quality monitoring of diaphragms in manufacture;

— supply requirements.

This European Standard applies to suspension diaphragms 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.

The European Standard does not detail the other components of pneumatic suspension assemblies or control systems such as air reservoirs, frames, stiffeners, emergency suspension systems or elastic supports (such as series springs), etc., which will affect the diaphragm performance.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 45020, *Standardization and related activities – General vocabulary (ISO/IEC Guide 2:1996).*

ISO 31-1, *Quantities and units – Part 1: Space and time.*

ISO 31-3, *Quantities and units – Part 3: Mechanics.*

ISO 36, *Rubber, vulcanized or thermoplastic – Determination of adhesion to textile fabric.*

ISO 48, *Rubber, vulcanized or thermoplastic – Determination of hardness (hardness between 10 IRHD and 100 IRHD* [4)]*).*

ISO 471, *Rubber – Temperatures, humidities and times for conditioning and testing.*

ISO 1382, *Rubber – Vocabulary.*

ISO 1431-2, Rubber, *vulcanized or thermoplastic – Resistance to ozone cracking – Part 2: Dynamic strain test.*

ISO 1817, *Rubber, vulcanized – Determination of the effect of liquids.*

ISO 2781, *Rubber, vulcanized – Determination of density.*

4) IRHD : International Rubber Hardness Degrees

ISO 2921, *Rubber, vulcanized – Determination of low-temperature characteristics – Temperature – Retraction procedure (TR test).*

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

ISO 10209-1, *Technical product documentation – Vocabulary – Part 1: Terms relating to technical drawings: general and types of drawings.*

3 Terms, definitions, symbols and abbreviations

3.1 Terms and definitions

For the purposes of this European Standard, the terms and definitions in ISO 1382 together with the following apply.

3.1.1
bead
end feature of the diaphragm which enables it to be secured and sealed to the surrounding structure

NOTE A diaphragm has two beads.

3.1.2
bead core
reinforcing core, vulcanized in at both ends of the carcass

NOTE It assures permanent seating on a conical or other specifically shaped mounting part.

3.1.3
carcass
structure of reinforcing material, typically consisting of heavy duty fabric plies arranged crosswise, embedded in the elastomer for flexible force transmission

3.1.4
diaphragm
the term "diaphragm" herein applies to the finished product, comprising of carcass and beads for use as part of pneumatic suspension system

NOTE Different types of diaphragms are illustrated in annex A.

3.1.4.1
new diaphragm
diaphragm in new condition and never yet used

3.1.4.2
grown diaphragm
diaphragm which has been in use and, as a result, has changed dimensionally

3.1.5
ply
layer typically made up of rubberized fabric