

RAUDTEEALASED RAKENDUSED. TELJEPUKSID.  
VEERELAAGRID

Railway applications - Axleboxes - Rolling bearings

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 12080:2017 sisaldab Euroopa standardi EN 12080:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 12080:2017 consists of the English text of the European standard EN 12080:2017.
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English Version

## Railway applications - Axleboxes - Rolling bearings

Applications ferroviaires - Boîtes d'essieux -  
Roulements

Bahnanwendungen - Radsatzlager - Wälzlager

This European Standard was approved by CEN on 19 June 2017.

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**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## European foreword

This document (EN 12080:2017) 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of an identical text or by endorsement, at the latest by March 2018, and conflicting national standards shall be withdrawn at the latest by March 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12080:2007+A1:2010.

The main changes with respect to the previous edition are listed below:

- The list of normative references has been changed. Some references have been added;
- The list of "Terms and definitions" has been changed and new items added, e.g. "Supplier" has been replaced by "Manufacturer";
- Clause 4 that regulates "Information and requirements to be agreed and documented" has changed significantly, and 4.3 and 4.4 have been removed;
- The definition of "Dimensional stability" in Clause 6.2 is new and a new requirement for retained austenite for through hardened rings has been added;
- Clause 6.3 about "Traceability" is re-written with new requirements;
- Clause 6.4 about "Coatings" is new;
- Clause 7 about "Material properties" has new requirements on "Chemical composition" and "Inclusion content";
- Clause 10 "Physical properties" has several changes, e.g. the definition of "Soundness class" as well as that "Steel riveted brass cages" are no longer allowed;
- Clause 11 "Marking" is now more detailed and specifies marking of different "bearing types" – country of origin is no longer compulsory;
- The inspection plan in Clause 12 has been extended;
- A requirement for archiving of documents relating to quality records has been added in Clause 13;
- In Clause 14 a requirement for informing about changes relating to product approval has been added;
- Clause 15 has changes relating to grease batch approval, corrosion protection and packaging;
- In Annex A there are changes to the specification of "Preparation of rings";
- In Annex B there are changes to the specification of "Equipment";

- Annex D is now normative and has significant changes;
- Annex F is now normative and more specific on some criteria;
- Annex G is a new informative annex giving an example of an axlebox assembly.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2008/57/EC.

For relationship with EU Directive 2008/57/EC, see informative Annex ZA, which is an integral part of this document.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Introduction

This standard is part of a set of standards: EN 12080, EN 12081 and EN 12082.

This European Standard has been drawn up with the purpose of aiming at optimum performance in rail transportation. Performance implies a certain quality level of the vehicle running gear, which every railway undertaking may require, notably by imposing procedures in approval and requesting the existence of a quality assurance system for the supply of rolling bearings intended for rolling stock operating on its network or other networks in Europe.



## 1 Scope

This European Standard specifies the quality parameters of axlebox rolling bearings supporting the load of the vehicle, required for reliable operation of trains on European networks. It covers metallurgical and material properties as well as geometric and dimensional characteristics. It also defines methods for quality assurance and conditions for approval of the products.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 10204:2004, *Metallic products - Types of inspection documents*

EN 12081:2017, *Railway applications - Axleboxes - Lubricating greases*

EN 12082:2017, *Railway applications - Axleboxes - Performance testing*

EN 13018:2016, *Non-destructive testing - Visual testing - General principles*

EN 15663:2017, *Railway applications - Definition of vehicle reference masses*

EN ISO 178:2010, *Plastics - Determination of flexural properties (ISO 178:2010)*

EN ISO 179-1:2010, *Plastics - Determination of Charpy impact properties - Part 1: Non-instrumented impact test (ISO 179-1:2010)*

EN ISO 307:2007, *Plastics - Polyamides - Determination of viscosity number (ISO 307:2007)*

EN ISO 683-17:2014, *Heat-treated steels, alloy steels and free-cutting steels - Part 17: Ball and roller bearing steels (ISO 683-17:2014)*

EN ISO 1172:2003, *Textile-glass-reinforced plastics - Prepregs, moulding compounds and laminates - Determination of the textile-glass and mineral-filler content - Calcination methods (ISO 1172:1996)*

EN ISO 1183-1:2012, *Plastics - Methods for determining the density of non-cellular plastics - Part 1: Immersion method, liquid pycnometer method and titration method (ISO 1183-1:2012)*

EN ISO 1183-2:2004, *Plastics - Methods for determining the density of non-cellular plastics - Part 2: Density gradient column method (ISO 1183-2:2004)*

EN ISO 2639:2002, *Steels - Determination and verification of the depth of carburized and hardened cases (ISO 2639:2002)*

EN ISO 3059:2012, *Non-destructive testing - Penetrant testing and magnetic particle testing - Viewing conditions (ISO 3059:2012)*

EN ISO 3451-1:2008, *Plastics - Determination of ash - Part 1: General methods (ISO 3451-1:2008)*

EN ISO 6507-1:2005, *Metallic materials - Vickers hardness test - Part 1: Test method (ISO 6507-1:2005)*

EN ISO 6508-1:2016, *Metallic materials - Rockwell hardness test - Part 1: Test method (ISO 6508-1:2016)*

EN ISO 6508-2:2015, *Metallic materials - Rockwell hardness test - Part 2: Verification and calibration of testing machines and indenters (ISO 6508-2:2015)*

EN ISO 6508-3:2015, *Metallic materials - Rockwell hardness test - Part 3: Calibration of reference blocks (ISO 6508-3:2015)*

EN ISO 9934-1:2016, *Non-destructive testing - Magnetic particle testing - Part 1: General principles (ISO 9934-1:2016)*

EN ISO 9934-2:2015, *Non-destructive testing - Magnetic particle testing - Part 2: Detection media (ISO 9934-2:2015)*

EN ISO 9934-3:2014, *Non-destructive testing - Magnetic particle testing - Part 3: Equipment (ISO 9934-3:2015)*

EN ISO 11357-3:2013, *Plastics - Differential scanning calorimetry (DSC) - Part 3: Determination of temperature and enthalpy of melting and crystallization (ISO 11357-3:2011)*

ISO 281:2007, *Rolling bearings — Dynamic load ratings and rating life*

ISO 492:2014, *Rolling bearings — Radial bearings — Geometrical product specifications (GPS) and tolerance values*

ISO 4967:2013, *Steel - Determination of content of non-metallic inclusions - Micrographic method using standard diagrams*

ASTM E45:2014, *Standard Test Methods for Determining the Inclusion Content of Steel*

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply (see also Annex G for more information).

#### 3.1

##### **customer**

railway undertaking, rolling stock manufacturer, Entity in Charge of Maintenance (ECM) or buyer of railway rolling stock or subassemblies, or their representative

#### 3.2

##### **railway undertaking**

organization or its representative, whatever status it has, which is responsible for the registration of rolling stock

#### 3.3

##### **manufacturer**

manufacturer of axlebox rolling bearings produced under their responsibility

#### 3.4

##### **network**

infrastructure, on which any railway undertaking can operate rolling stock

#### 3.5

##### **axlebox (assembly)**

assembly consisting of the following major components: rolling bearing(s)/cartridge bearing, rolling bearing grease, seal(s) and box housing