

## **Tehnilised joonised – Raudteealased rakendused – Osa 1: Üldpõhimõtted**

Technical drawings - Railway applications - Part 1:  
General principles

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 15016-1:2005 sisaldab Euroopa standardi EN 15016-1:2004 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 23.09.2004 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 15016-1:2005 consists of the English text of the European standard EN 15016-1:2004.</p> <p>This document is endorsed on 23.09.2004 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b></p> <p>Standard kehtestab nõuded raudteealaste rakenduste tehniliste jooniste koostamisele, haldamisele ja paljundamisele, mis on kooskõlas EN, ISO või IEC tehnilisi jooniseid käsitlevate standarditega. Standard käsitleb raudteede jaoks mõeldud tehnilisi jooniseid sõltumata kirjeldatud tehnoloogiast (sh mehhaanika, pneumaatika, hüdraulika, elektroonika jne). Standard kehtib jooniste kogu kasutusea jooksul ning kõigi raudteeorganisatsioonide, tehniliste joonistega kokkupuutuvate osapoolte ning raudteealaste rakenduste jaoks jooniseid koostavate tarnijate suhtes. Standard ei käsitle dokumentide tehnilist sisu ega ehitusalast dokumentatsiooni.</p>	<p><b>Scope:</b></p> <p>This European Standard lays down requirements for the preparation, administration and reproduction of technical drawings for railway applications. It complies with the requirements of EN, ISO or IEC Standards for technical drawings. It applies to technical drawings for railways, irrespective of technology i.e. mechanical, pneumatic, hydraulic, electronic etc.</p>
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**Võtmesõnad:** Raudtee tehnika, tehnilised joonised, üldpõhimõtted

ICS 01.100.01

English version

## Technical drawings - Railway applications - Part 1: General Principles

Dessins techniques - Applications ferroviaires - Partie 1:  
Principes généraux

Technische Zeichnungen - Bahnanwendungen - Teil 1:  
Allgemeine Grundsätze

This European Standard was approved by CEN on 9 January 2004.

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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 Central Secretariat has the same status as the official versions.

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



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## Foreword

This document (EN 1516-1:2004) has been prepared by Technical Committee CEN/TC 256 "Railway applications", the secretariat of which is held by DIN, in collaboration with Technical Committee ISO/TC 10 "Technical drawings, product definition and related documentation".

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 December 2004, and conflicting national standards shall be withdrawn at the latest by December 2004.

This document has been prepared under a mandate (M024) given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

This document has been prepared under Mode 4 co-operation with CENELEC TC9X. In the event of an amendment being required to this standard, the co-op TC will be consulted before proceeding to amend this document.

Particular considerations were made to standardize the computerised transfer of the content of the documents, its output on conventional information carrier and its reproduction without loss of quality. Remarks in international standards with regard to document handling are respected and supported by this standard and if necessary adopted or completed to the well-established procedures in the European railway business.

This European Standard "Technical drawings — Railway applications" consists of the following parts:

- EN 15016-1: General principles
- EN 15016-2: Parts lists
- EN 15016-3: Handling of modifications of technical documents
- prEN ISO 21267-4: Data exchange

The annexes A and B are normative.

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

## Introduction

In railway business, the customer very often requires, as part of a contract, technical documents in a certain form. In order to support co-operation and effective exchange of information between customers, suppliers and partners, it is necessary to have the document requirements precisely defined.

This European Standard refers to EN, ISO or IEC standards dealing with technical documents. In cases where ISO or IEC standards are not sufficiently precise, this standard gives specific details. These additions to EN, ISO and IEC standards facilitate the exploitation and administration.

These requirements have been drawn up in order to accommodate:

- the large variety of users;
- ease of documents transfer;
- any specific series of documentation related to the railway material they define.

Special consideration has been given to those producing drawings by computer, also microcopying and their reproduction without loss of quality.

**NOTE** The range of documents covers documents such as specifications, conditions for acceptance or further technical specifications which can not be graphically represented. This is meant to highlight the difference between "graphical representation" and "verbal description".

## 1 Scope

This European Standard lays down requirements for the preparation, administration and reproduction of technical drawings for railway applications. It complies with the requirements of EN, ISO or IEC Standards for technical drawings. It applies to technical drawings for railways, irrespective of technology i.e. mechanical, pneumatic, hydraulic, electronic etc.

The European Standard applies throughout the total life span of the drawings. It applies to all the railway organizations and parties concerned with technical drawings, and to suppliers preparing drawings for railway applications. This standard does not apply to the technical contents of the document. Neither does the standard apply to building documentation.

## 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 61346-1, *Industrial systems, installations and equipment and industrial products — Structuring principles and reference designations — Part 1: Basic rules* (IEC 61346-1:1996).

EN 61346-2, *Industrial systems, installations and equipment and industrial products — Structuring principles and reference designations — Part 2: Classification of objects and codes for classes* (IEC 61346-2:2000).

EN 61355, *Classification and designation of documents for plants, systems and equipment* (IEC 61355:1997).

EN ISO 128-20, *Technical drawings — General principles of presentation — Part 20: Basic conventions for lines* (ISO 128-20:1996).

EN ISO 3098-0, *Technical product documentation — Lettering — Part 0: General requirements* (ISO 3098-0:1997).

EN ISO 3098-2, *Technical product documentation — Lettering — Part 2: Latin alphabet, numerals and marks* (ISO 3098-2:2000).

EN ISO 5457:1999, *Technical product documentation — Sizes and layout of drawing sheets* (ISO 5457:1999).

EN ISO 6428, *Technical drawings — Requirements for microcopying* (ISO 6428:1982).

EN ISO 6433, *Technical drawings — Item references* (ISO 6433 1981).

EN ISO 10209-2:1996, *Technical product documentation — Vocabulary — Part 2: Terms relating to projection methods* (ISO 10209-2:1994).

ISO 128-22, *Technical drawings — General principles of presentation — Part 22: Basic conventions and applications for leader lines and reference lines*.

ISO 128-25:1999, *Technical drawings — General principles of presentation — Part 25: Lines on shipbuilding drawings*.

ISO 128-30, *Technical drawings — General principles of presentation — Part 30: Basic conventions for views*.

ISO 639-1, *Codes for the representation of names of languages — Part 1: Alpha-2 code*.

ISO 1000, *SI units and recommendations for the use of their multiples and of certain other units*.

ISO 7200, *Technical drawings — Title blocks*.

ISO 10209-1:1992, *Technical product documentation — Vocabulary — Part 1: Terms relating to technical drawings: General and types of drawings*.

ISO 16016, *Technical product documentation — Protection notices for restricting the use of documents and products*.

### **3 Terms and definitions**

For the purposes of this European Standard, the terms and definitions given in ISO 10209-1:1992 and EN ISO 10209-2:1996 apply.

## **4 Preparation of drawings**

### **4.1 Layout**

#### **4.1.1 Composition**

Any document shall be given an identification number.

A set of drawings describing an assembly, a product or an installation will normally by various means (drawing lists, document control lists etc.) be formed as an entity. Parts lists mainly list details of an assemblage or collective drawing at a certain level. All of these parts lists may be produced either on drawing forms or parts of drawings or as documents affiliated to the company's administrative system.

Each different part or different assembly shall have a separate identification number.

It is recommended that the parts list forms a separate document (see EN 15016-2). Alternatively, the parts list may be entered on the same sheet as the drawing above the title block.

#### **4.1.2 Special cases**

It is permissible to represent similar parts or assemblies on a drawing.

#### **4.1.3 Applications**

If required, the applications or the identification number of the document indicating the relations between the drawing and the applications should be noted in the title block of the drawing or parts list.

#### **4.1.4 Multiple sheets**

Multiple sheet drawings marked with the same registration or identification number shall be provided with a sequential sheet number. In addition, the total number of sheets shall be shown on sheet 1, for example:

"Sheet No. n/p"

where

- n is the sheet number;
- p is the total number of sheets

(see ISO 7200).