

---

**Železniške naprave - Oznake na železniških vozilih - 2. del: Zunanje oznake na potniških vagonih, motornih garniturah, lokomotivah in motornih vozilih za posebne namene**

Rail applications - Markings on railway vehicles - Part 2: External markings on coaches, motives power units, locomotives and on track machines

Bahnanwendungen - Kennzeichnungen von Schienenfahrzeugen - Teil 2: Außenanschriften an Personenfahrzeugen, Triebfahrzeugeinheiten, Lokomotiven und Gleisbaumaschinen

Applications ferroviaires - Inscriptions pour véhicules ferroviaires - Partie 2: Inscriptions extérieures sur voitures voyageurs, rames automotrices, locomotives et engins de travaux

**Ta slovenski standard je istoveten z: EN 15877-2:2013**

**ICS:**

01.075	Simboli za znake	Character symbols
45.060.20	Železniški vagoni	Trailing stock

**SIST EN 15877-2:2014**

**en,fr,de**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 15877-2:2014

<https://standards.iteh.ai/catalog/standards/sist/79ababe4-56c9-4947-b296-482fa91f6bf4/sist-en-15877-2-2014>

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 15877-2**

October 2013

ICS 45.060.20

English Version

**Railway applications - Markings of railway vehicles - Part 2:  
External markings on coaches, motive power units, locomotives  
and on track machines**

Applications ferroviaires - Inscriptions pour véhicules  
ferroviaires - Partie 2: Inscriptions extérieures pour voitures,  
engins moteur, locomotives et engins de pose de voie

Bahnanwendungen - Kennzeichnungen von  
Schienenfahrzeugen - Teil 2: Außenanschriften an  
Personenfahrzeugen, Triebwagen, Lokomotiven und  
Gleisbaumaschinen

This European Standard was approved by CEN on 24 August 2013.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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

## Contents

Page

Foreword.....	4
Introduction .....	5
<b>1</b> <b>Scope .....</b>	<b>6</b>
<b>2</b> <b>Normative references .....</b>	<b>6</b>
<b>3</b> <b>Terms, definitions and abbreviations .....</b>	<b>6</b>
3.1    Terms and definitions .....	6
3.2    Abbreviations .....	8
<b>4</b> <b>Markings .....</b>	<b>9</b>
4.1    General principles.....	9
4.2    Colour .....	9
4.3    Positioning .....	10
4.4    List of markings — Matrix of markings applicable to the exteriors of all Fixed Formation Train Sets, Coaches, Motive Power Units and Locomotives .....	14
4.5    Details of vehicle markings .....	18
4.5.1   Symbol of the Railway Undertaking.....	18
4.5.2   European Vehicle Number (EVN) and Vehicle Keeper Marking (VKM) .....	18
4.5.3   Train set number.....	20
4.5.4   Vehicle mass .....	20
4.5.5   Dimensions.....	24
4.5.6   Interoperability Markings .....	27
4.5.7   Broadcasting, remote control and train-bus equipment .....	32
4.5.8   Date of last overhaul .....	34
4.5.9   Brake inscriptions.....	36
4.5.10   Braked weight and changeover devices .....	45
4.5.11   Home depot .....	53
4.5.12   Designation of driving cabs.....	53
4.5.13   Numbering of axles and wheels (Examples).....	53
4.5.14   Electricity Hazard marking.....	54
4.5.15   Filling and draining devices for sanitary water supply.....	55
4.5.16   Discharge point for sealed toilet systems .....	57
4.5.17   Pressure Pulse Insensitive Vehicles .....	58
4.5.18   Pressure Pulse Sensitive Vehicles with sealed toilet systems.....	59
4.5.19   Lifting and re-railing markings .....	59
4.5.20   Radius curve restrictions.....	61
4.5.21   Isolation of bogie brake .....	63
4.5.22   Isolation of pneumatic suspension.....	64
4.5.23   Isolation of third-rail shoe gear .....	64
4.5.24   Control of nose doors or coupling shield .....	65
4.5.25   Emergency ladder.....	66
4.5.26   Emergency coupler.....	67
4.5.27   Emergency coupler equipment .....	67
4.5.28   Non-visible stop cocks.....	68
4.5.29   Location of batteries .....	68
4.5.30   Battery isolation switch .....	69
4.5.31   Engine fuel filling point .....	69
4.5.32   Filling point for sandbox.....	70
4.5.33   Sanding test .....	70
4.5.34   Earthing protection.....	71
4.5.35   Gauge marking.....	72
4.5.36   Vehicles prohibited from passing through retarders or other stopping devices in service mode .....	74

**Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2008/57/EC.....75**

**Bibliography.....77**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 15877-2:2014

<https://standards.iteh.ai/catalog/standards/sist/79ababe4-56c9-4947-b296-482fa91f6bf4/sist-en-15877-2-2014>

**EN 15877-2:2013 (E)****Foreword**

This document (EN 15877-2:2013) 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 April 2013, and conflicting national standards shall be withdrawn at the latest by April 2013.

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 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.

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

The series of European Standards, *Railway applications — Marking on railway vehicles*, consists of the following parts:

- *Part 1: Freight wagons;*
- *Part 2: External markings on coaches, motive power units, locomotives and on track machines.*

Some markings in Part 1 may also be used for on track machines as appropriate.

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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Introduction

This standard has been developed to provide a European standard for external markings used on railway vehicles. These markings are used to provide various items of information to railway staff relating to the technical and operational characteristics and intended use of vehicles in a clear and concise manner. Among those markings are safety markings used to alert equipment operators to hazards that may be encountered in the use or maintenance of the vehicles and markings relevant to emergency and rescue.

The standard is applicable to coaches, motive power units, locomotives and on track machines operating within the European Union, the European Free Trade Association Member States and States which are member of OTIF (Intergovernmental Organisation for International Carriage by Rail) and it satisfies the legal requirements within these institutions.

The standard is consistent with:

- a) the Technical Specification for Interoperability Subsystem:
  - 1) Rolling Stock Scope for Conventional and High Speed Locomotives and Passenger rolling stock;
  - 2) Traffic Operation and Management;
- b) the Convention Concerning International Carriage by Rail (COTIF) of 9<sup>th</sup> May 1980 in the Version of the Protocol of Modification of 3<sup>rd</sup> June 1999 which entered into force on 1<sup>st</sup> July 2006.

It therefore supports the essential requirements of:

- Directive 2008/57/EC on the Interoperability of the Railway System;  
<https://standards.iteh.ai/catalog/standards/sist/79ababe4-56c9-4947-b296-482f91f6bf4/sist-en-15877-2-2014>
- COTIF 1999, Appendix F, Annex 1-A.

It is intended to be used by all parties concerned with the marking of railway vehicles.

**EN 15877-2:2013 (E)****1 Scope**

This part of the European Standard identifies the information required or recommended to be marked on coaches, motive power units, locomotives and On Track Machines, relating to their technical and operational characteristics. It defines the characteristics of these markings, the requirements pertaining to their presentation, their shape and position on a vehicle and their meaning. Some markings are accompanied with note(s) where appropriate.

Service markings relating to passenger information are not addressed by this standard.

The provisions of this standard cover external markings on vehicles as required by:

- the TSIs;
- the COTIF regulations.

In addition to the markings shown in this European Standard, there might be other markings and text applied to these vehicles, e.g. instructions and warnings concerning the use of equipment specific to the vehicle. Such additional markings are not in contravention of this standard provided they do not interfere with, create ambiguity or in any other way affect the markings in this standard.

This European Standard is applicable to all railway motive power units, coaches, baggage and mail vans and car carrying coaches intended to be included in passenger trains, locomotives and On Track Machines operating within and between Member States of the European Union, the European Economic Area Member States and States which are member of OTIF (Intergovernmental Organisation for International Carriage by Rail) and it satisfies the legal requirements within these institutions.

**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 15663, *Railway applications — Definition of vehicle reference masses*

ISO 3864-4:2011, *Graphical symbols — Safety colours and safety signs — Part 4: Colorimetric and photometric properties of safety sign materials*

**3 Terms, definitions and abbreviations****3.1 Terms and definitions**

For the purposes of this document, the following terms and definitions apply.

**3.1.1****decal**

picture or design printed on special material for the purpose of adherence to a vehicle

**3.1.2****Light Reflectance Value**

LRV

- total quantity of visible light that is reflected by a surface at all wavelengths and directions when illuminated by a light source, or
- proportion of visible light reflected by a surface, weighted for the sensitivity to light of the human eye



Note 1 to entry: This is equivalent to CIE Tristimulus Y10 when viewed under Illuminant D65 and when measured with the appropriate specimen and measurement geometry. Further details of the CIE Tristimulus values are given in CIE 15:2004 and further details of the measurement of reflection are given in CIE 130:1998.

### 3.1.3

#### contrast

$K$

perception of a difference visually between one surface or element of a railway vehicle and another by reference to their light reflectance values (LRV)

Note 1 to entry: When applying colour to two adjacent surfaces, to provide sufficient contrast, the contrast between the colours will be determined by the light reflectance value.

For the purposes of this standard, "contrast" will be assessed by the diffused light reflectance value.

Contrast by the diffused light reflectance value' will mean contrast of surfaces described in the following formula:

$$K = \frac{(L_0 - L_h)}{L_0 + L_h}$$

where

$K$  is the contrast;

$L_0$  is the diffused light reflectance value of the object;

$L_h$  is the diffused light reflectance value of the background or adjacent surface.

### 3.1.4

#### marking

lettering or symbols applied to a vehicle by means of decals, hand painting or by another agreed method with the purpose of providing information concerning the vehicle

### 3.1.5

#### retro-reflecting material

material which reflects radiation (light) in a direction close to the opposite of the direction from which it came

### 3.1.6

#### stencil

template for the required lettering

### 3.1.7

#### vehicle

in this standard, smallest part in a train (a single vehicle) which features an individual bodyshell lying on its own sets of bogies or wheels or sharing them with adjacent vehicles

### 3.1.8

#### railway vehicle

vehicle suitable for circulation on its own wheels on railway lines with or without traction

### 3.1.9

#### motive power unit

self-propelled unit capable of carrying passengers and/or luggage/mail

### 3.1.10

#### train

operational formation consisting of one or more vehicles

**EN 15877-2:2013 (E)****3.1.11****fixed formation train set**

formation of vehicles that can only be reconfigured within a workshop environment

**3.1.12****On Track Machines****OTMs**

vehicles specially designed for construction and maintenance of the track and infrastructure including Infrastructure inspection vehicles

**3.1.13****locomotive**

traction vehicle (or a combination of several vehicles) that is not intended to carry a payload and has the ability to uncouple in normal operation from a train and to operate independently. This definition also covers shunting locomotives

**3.1.14****coach**

in this standard, non traction vehicle in a fixed or variable formation capable of carrying passengers, including restaurant cars, sleeping cars, couchettes cars, etc., and luggage / mail

**3.2 Abbreviations**

Term	Definition
ATMF	Appendix G to COTIF (Admission procedures)
CEN	European Committee for Standardisation
CIE	International Commission on Illumination, Vienna, Austria. <a href="http://www.cie.co.at">http://www.cie.co.at</a>
COTIF	Convention concerning International Carriage by Rail (COTIF) in the version of the Protocol of Modification of 3 June 1999
EBO	Emergency Brake Override
ECM	Entity in Charge of Maintenance
EN	European Standard
ep	Electropneumatic brake
ERA	European Railway Agency
EU	European Union
OTIF	Intergovernmental Organisation for International Carriage by Rail
RAL	colour standardisation system of the German Institute for Quality Assurance and Certification
RIC	(Regolamento Internazionale delle Carrozze) Agreement governing the exchange and use of coaches in international traffic.
RID	RID means the Regulations concerning the International Carriage of Dangerous Goods (Appendix C to COTIF 1999) (RID is also Annex to EU Council Directive 96/49/EC)
TSI	Technical Specification for Interoperability: the specifications by which each subsystem or part subsystem is covered in order to meet the essential requirements and ensure the interoperability of the trans-European rail system
TEN	Trans European Network
UIC	International Union of Railways
VKM	Vehicle Keeper Marking

## 4 Markings

### 4.1 General principles

4.1.1 The markings and the content of information are as given in 4.5.

Where a marking is defined in this standard, then other markings indicating the same function/facility shall not be applied.

4.1.2 A marking shall be located on the vehicle at a position easily visible by staff standing and presented in a way clearly understandable to persons concerned. If the marking is intended to be read by a person standing at ground level, it should not be located at a level higher than 2 000 mm above the rail surface<sup>1)</sup>. The visibility shall also be ensured if the marking needs to be read from a position other than ground level or if it is placed on a non-vertical surface. Hazard Markings, e.g. the warning marking for live catenary, shall be located in such a position that they can be seen before the hazard zone is actually reached.

4.1.3 Advertising, designs or other text or pictures not relating to markings applied to a vehicle shall not affect the visibility and the clear and unambiguous understanding of the marking. Such advertising or markings shall not encroach within 100 mm of the markings defined in this standard.

4.1.4 Unless otherwise indicated in the diagrams, the markings shall be placed on both sides of the vehicle.

4.1.5 A marking shall ensure durable, non-degraded marking for a period of at least 6 years under a temperature range of -40 °C to +90 °C. It shall be weather-resistant and resistant to cleaning agents, high pressure water or air cleaning and cleaning machines with brushes.

4.1.6 Markings shall use Latin characters and Arabic numerals. The font to be used shall be non-italic, sans serif and of a type such as Univers 67, Helvetica, Arial.

4.1.7 The dimensions indicated in this document may have a tolerance of plus or minus 10 % when the marking is hand produced.

### 4.2 Colour

4.2.1 Colours used shall conform to ISO 3864-4:2011. Examples are given in Annex E of that standard. A combination of the colours Red and Green is not allowed for contrast.

NOTE For the colour Orange, which is not included in Table E.1 of ISO 3864-4:2011 but is specified in RID, RAL 2003 or NCS S 0570-Y50R or equivalent can be used. RAL<sup>®</sup> and NCS<sup>®</sup> are not normative for colour matching, but are examples from industry colour order systems to indicate what the respective colours look like.

4.2.2 Unless otherwise indicated in the diagrams, the colours need not be made of retro reflecting material.

4.2.3 The luminance contrast  $K$  shall be greater than 0,6.

4.2.4 If there is no colour specification indicated with the specification of a marking, the colour of the informative part (the symbol, letters/numbers, borders and lines) shall be black on a light uniform background or white on a dark uniform background. The background for decals, stencils and painted markings may be

---

1) For the assessment of the location criteria, the ground level should not be lower than 200 mm below the rail surface; in accordance with anthropometric data, the eye level of the reading person should not be less than 1 500 mm above ground; and the reading distance should be minimum 700 mm from the side of the vehicle. Tilting the head back, it should be possible to look up at an angle of 45 degrees above horizontal; a calculation using these parameters gives the limitation 2 000 mm.

**EN 15877-2:2013 (E)**

transparent and thereby represented by the colour of the material on which the marking is placed, i.e. the bodyside of the vehicle.

**4.3 Positioning**

The list of markings is contained in the table under 4.4 and their position and meaning described in 4.5.

If no specific position for a marking is prescribed in 4.5, the following general rules are to be followed:

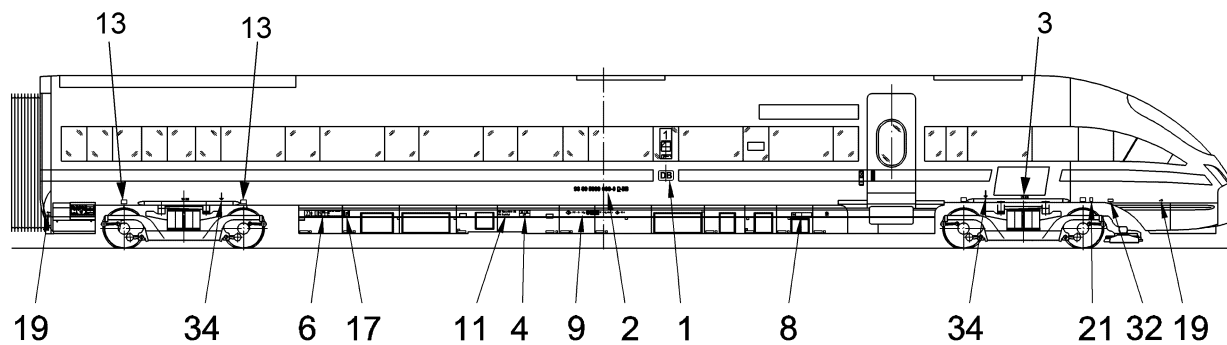
A marking indicating a lever, a button, a nozzle, an indicator, hidden equipment or a point for action (e.g. a lifting point) shall be located next to that item (normally above, beneath or on the cover concealing the item) and may not lead to any misunderstanding or confusion. Other markings shall be logically grouped (e.g. vehicle number, operational capability and braking characteristics etc.); these other markings shall, unless otherwise indicated in the diagrams, be placed on the vehicle body side either in a line on the lower part of it (above the skirt) or within a notional rectangle close to the end of the vehicle body.

Markings should be positioned generally according to the examples given in the position diagrams of Figures 1 to 3.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

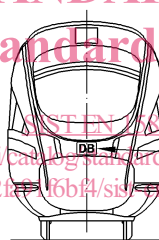
SIST EN 15877-2:2014

<https://standards.iteh.ai/catalog/standards/sist/79ababe4-56c9-4947-b296-482fa91f6bf4/sist-en-15877-2-2014>



a)

iTeh STANDARD PREVIEW  
(standards.iteh.ai)



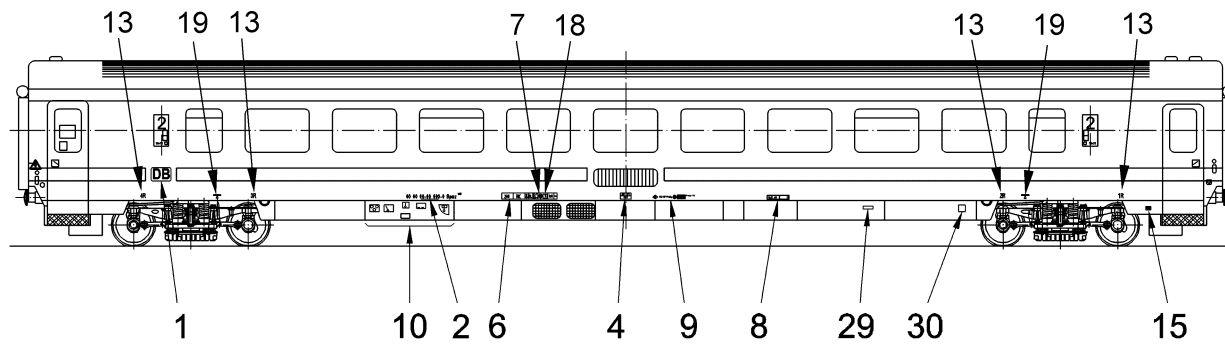
b)

**Key**

See 4.4.

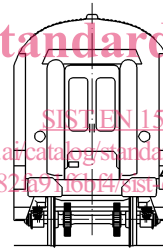
**Figure 1 - Leading/Trailing vehicles of fixed formation train sets or motive power units**

EN 15877-2:2013 (E)



a)

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

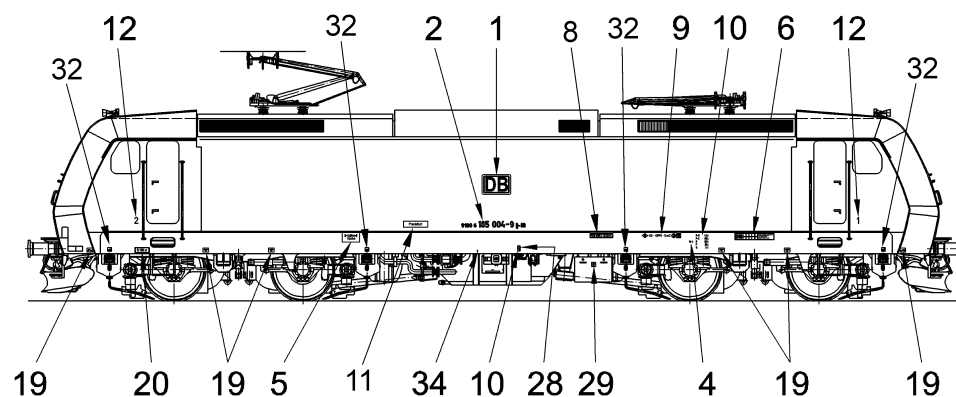


b)

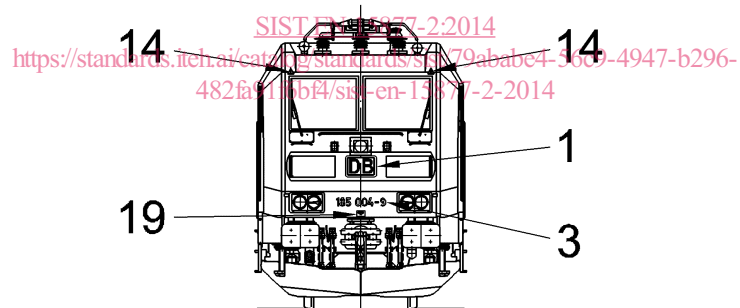
Key

See 4.4.

Figure 2 - Coaches



iTeh STANDARD PREVIEW  
a)  
(standards.iteh.ai)



b)

Key

See 4.4.

Figure 3 - Locomotives