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Železniške naprave - Oznake železniških vozil - 1. del: Tovorni vagoni

Railway applications - Markings of railway vehicles - Part 1: Freight wagons

Bahnanwendungen - Kennzeichnung von Schienenfahrzeugen - Teil 1: Güterwagen

Applications ferroviaires - Marquages pour véhicules ferroviaires - Partie 1: Wagons de fret

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ICS:

01.075	Simboli za znake	Character symbols
45.060.20	Železniški vagoni	Trailing stock

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EUROPEAN STANDARD

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NORME EUROPÉENNE

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Railway applications - Markings of railway vehicles - Part 1: Freight wagons

Applications ferroviaires - Inscriptions pour véhicules
ferroviaires - Partie 1: Wagons

Bahnwendungen - Kennzeichnungen von
Schienenfahrzeugen - Teil 1: Güterwagen

This European Standard was approved by CEN on 26 May 2024.

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European foreword

This document (EN 15877-1:2024) 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of an identical text or by endorsement, at the latest by January 2025, and conflicting national standards shall be withdrawn at the latest by January 2025.

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

This document supersedes EN 15877-1:2012+A1:2018.

EN 15877-1:2024 includes the following significant technical changes with respect to EN 15877-1:2012+A1:2018:

- normative references have been updated;
- document has been newly structured;
- markings have been revised;
- new markings have been added (Figure 1 c), Figure 3, Figure 25, Figure 29, Figure 37 b), Figure 38 a), Figures 45 to 48, Figure 51, Figure 60, Figure 63, Figures 92 to 97, Figure 100 b), Figure 101 b), Figure 103, Figures 114 to 116, Figures 118 to 121, Figure 127 b), Figure 131 c));
- unused markings have been deleted (former Figures 1, 4, 11, 13 to 15, 36, 49 a), 50, 51, 60, 61, 63, 65, 87 a), 89, 105).

The series EN 15877, *Railway applications — Markings of railway vehicles* consists of two parts:

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

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

EN 15877-1:2024 (E)

Introduction

This document describes standardized markings for use on heavy rail freight wagons. These markings are used to provide various items of information relating to the characteristics and intended use of rail vehicles in a clear and concise manner. Among those markings are safety signs used to alert equipment operators to hazards that can be encountered in the use or maintenance of the rail vehicles.

In addition to the markings in this document, there might be other markings and text applied to a heavy rail freight wagon, e.g. instructions and warnings concerning the use of equipment. Such additional markings are not in contravention of this document provided they do not interfere with or affect the markings in the document.

The document is applicable to all heavy rail freight wagons operating within the European Union, the European Free Trade Association member states and states which are member of OTIF (Intergovernmental Organization for International Carriage by Rail) and it satisfies the legal requirements within these institutions.

This document is consistent with:

- Directive (EU) 2016/797 on the interoperability of the rail system within the Community;
- COTIF UTP GEN-A: General provisions – Essential requirements.

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

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1 Scope

This document specifies the markings on heavy rail freight wagons, or parts of heavy rail freight wagons, relating to their technical, operational and maintenance characteristics. It specifies the characteristics of these markings, the requirements pertaining to their presentation, their shape and position on a rail vehicle and their meaning. Some markings are accompanied with (a) note(s), where appropriate.

Tank manufacturers' design criteria, test and product specification plates have not been considered in this document as they are specified in EN 12561-1:2011.

Where fully specified in RID [14] dangerous goods markings have not been considered in this document (dimensions, colour, location and form). Where markings are not fully specified in RID they are included in this document.

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.

EN 12561-8:2011, *Railway applications — Tank wagons — Part 8: Heating connections*

EN 12663-2:2010+A1:2023, *Railway applications - Structural requirements of railway vehicle bodies - Part 2: Freight wagons*

EN 13775-1:2003, *Railway applications - Measuring of new and modified freight wagons - Part 1: Measuring principles*

EN 15273-2:2013+A1:2016,¹ *Railway applications — Gauges — Part 2: Rolling stock gauge*

EN 15528:2021, *Railway applications - Line categories for managing the interface between load limits of vehicles and infrastructure*

EN 15625:2021, *Railway applications - Braking - Automatic variable load sensing devices*

EN 17343:2023, *Railway applications - General terms and definitions*

EN ISO 7010:2020, *Graphical symbols — Safety colours and safety signs — Registered safety signs (ISO 7010:2019, Corrected version 2020-06)*

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

¹ The document is currently under revision. Stage at the time of publication: prEN 15273-2:2023.

EN 15877-1:2024 (E)**3 Terms, definitions and abbreviated terms****3.1 Terms and definitions**

For the purposes of this document, the terms and definitions given in EN 17343:2023 and the following apply.

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/>

3.1.1**buffer stroke**

deflection of the buffer in the operating range of the elastic system

3.1.2**decal**

picture or design printed on specially prepared plastic sheeting for the purpose of adherence to a freight wagon

3.1.3**luminance contrast*****C***

quantity relating to the difference in luminance between two surfaces

Note 1 to entry: Widely accepted definitions include:

$C = (L_1 - L_2)/L_1$ with $L_1 > L_2$ (positive contrast),

$C = (L_1 - L_2)/L_1$ with $L_1 < L_2$ (negative contrast),

$C = (L_1 - L_2)/(L_1 + L_2)$ with $L_1 > L_2$,

where C is the luminance contrast and L_1 and L_2 are the luminances of the two surfaces.

Note 2 to entry: Although luminance contrast is intended to correlate with brightness contrast, it is possible that it does not do so directly because brightness contrast depends on other factors such as the angular separation, the luminance gradient, and any size difference between the two surfaces

[SOURCE: IEC 60050-845:2020, 845-22-091]

3.1.4**marking**

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

3.1.5**paint**

liquid mixture, usually of a solid pigment in a liquid medium such as oil or water

3.1.6**stencil**

template for the required lettering

3.1.7**tare mass**

mass in the condition available for service, but without any payload

Note 1 to entry: This “mass” definition follows the definition of “working order” as given in EN 15663:2017+A1:2018², 3.1.12.

3.2 Abbreviated terms

For the purposes of this document, the following abbreviated terms apply:

ATP	automatic train protection
COTIF	Convention concerning International Carriage by Rail
EFTA	European Free Trade Association
EU	European Union
EVN	European Vehicle Number
IM	infrastructure manager
OTIF	Intergovernmental Organization for International Carriage by Rail
RAL	Colour standardization system of the German Institute for Quality Assurance and Certification
RID	Regulations concerning the International Carriage of Dangerous Goods
TSI	Technical Specifications 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
UTP	Uniform Technical Prescriptions
VKM	vehicle keeper marking
TSI OPE	Technical Specification for Interoperability Subsystem: Operation and Traffic Management
TSI WAG	Technical Specification for Interoperability Subsystem: Rolling Stock: Freight Wagons

² The document is currently being amended. Stage at the time of publication: EN 15663:2017+A1:2018/FprA2:2024.

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4 Markings

4.1 General principles

4.1.1 The markings and the content of information are given in 4.4.

4.1.2 A marking shall be located on the wagon at a position easily visible by staff standing at ground level 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 running surface. 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 sign for live catenary, shall be located in such a position that they can be seen before the hazard zone is actually reached.

The location of a marking shall be such that correctly positioned tarpaulins, which may be used to sheet the wagon, do not obscure the marking.

4.1.3 Advertising, designs or other text or pictures not relating to the markings applied to a wagon shall not affect the visibility and the clear and unambiguous understanding of the marking. Such items may only be placed on the side walls or on the tank shell. In this case, a border of minimum 100 mm shall be placed around each marking or composition of markings; these borders shall have a “neutral” colour or be the colour which accentuates the marking.

For all required markings, the background around the marking shall be framed with a contrasting background of at least 5 mm.

4.1.4 Graffiti which affects the visibility or understanding of the markings shall be removed.

4.1.5 Unless otherwise indicated in the figures, the markings shall be placed on both sides of the wagon.

4.1.6 A marking shall ensure durable, non-degraded marking for a period of at least 6 years under a temperature range of -40 °C to $+90\text{ °C}$. If a marking is defective or illegible, it shall be restored. It shall be weather-resistant and resistant to cleaning agents, high pressure water or air cleaning and cleaning machines with brushes.

4.1.7 Alphanumeric characters used on 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 or Arial.

4.1.8 The distances between value and unit shall be clearly separated by space (see EN ISO 80000-1:2022, e.g. 7.1.4.)

4.1.9 The dimensions indicated in this document may have a tolerance of plus or minus 10 %. For better readability, it is recommended to use industrial foils or stencils for hand produced markings.

4.1.10 When employing the use of moveable panels it shall be ensured that the required panel is suitably secured so as not to be inadvertently changed or get lost.

4.1.11 If moveable panels are used, it shall be ensured that these are adequately secured so that they cannot accidentally fold over or fall off.

4.2 Colour

4.2.1 Colours used shall be in accordance with ISO 3864-4:2011, see Annex A of this document.

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

4.2.3 The luminance contrast C shall be in accordance with ISO 3864-4:2011.

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 background or white on a dark background. The background for decals, stencils and painted markings may be transparent and thereby represented by the colour of the material on which the marking is placed, e.g. the wall of the wagon. In any case, when a part of the marking is indicated to be the wagon colour background, the requirement to the luminance contrast shall be met.

4.3 Positioning

Where applicable, markings shall be positioned generally in accordance with Figure 1 and Figure 2. The list of markings is contained in Table 1 and their position and meaning is described in 4.4. Not all markings can be accommodated in the figures.

If no specific position for a marking is prescribed in 4.4, the following general rules shall be followed:

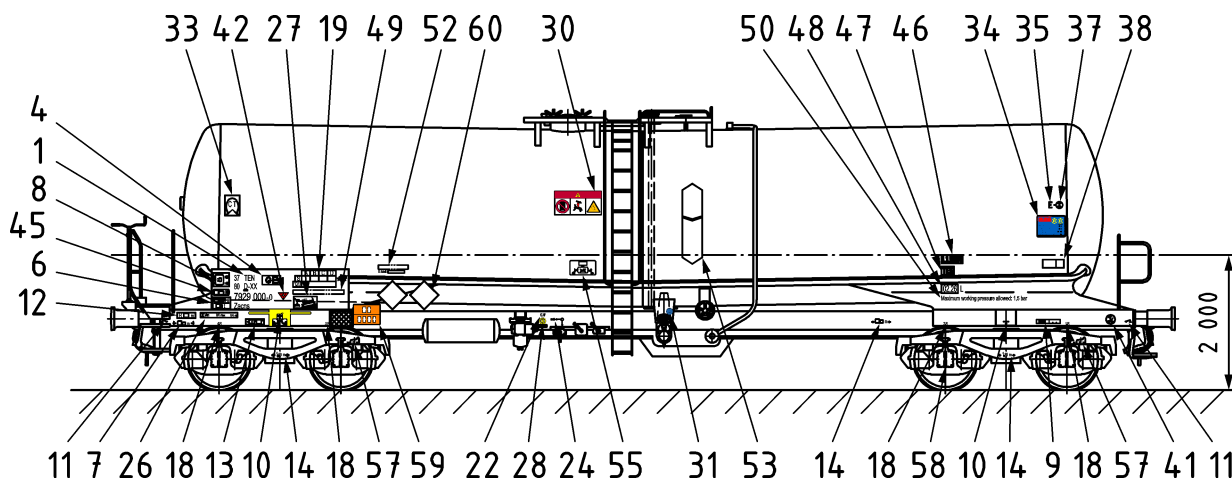
A marking indicating a lever, a button, a nozzle, an indicator, hidden equipment or a point for action (e.g. a lifting point) shall be located next to that item (normally above, beneath or on the cover concealing the item) and may not lead to any misunderstanding or confusion.

Document Preview

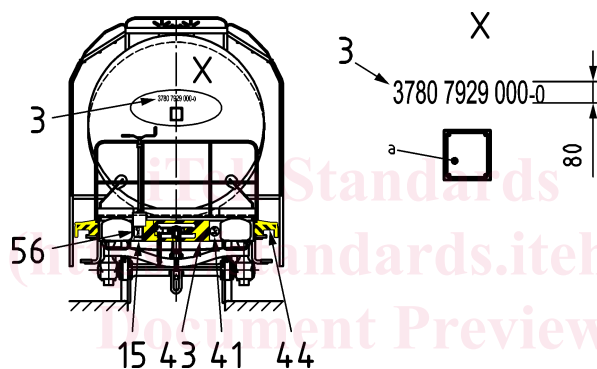
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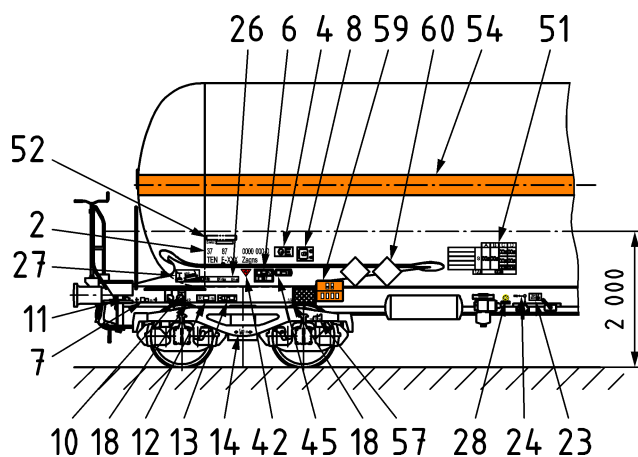
Dimensions in mm



a) Side view



b) Front view



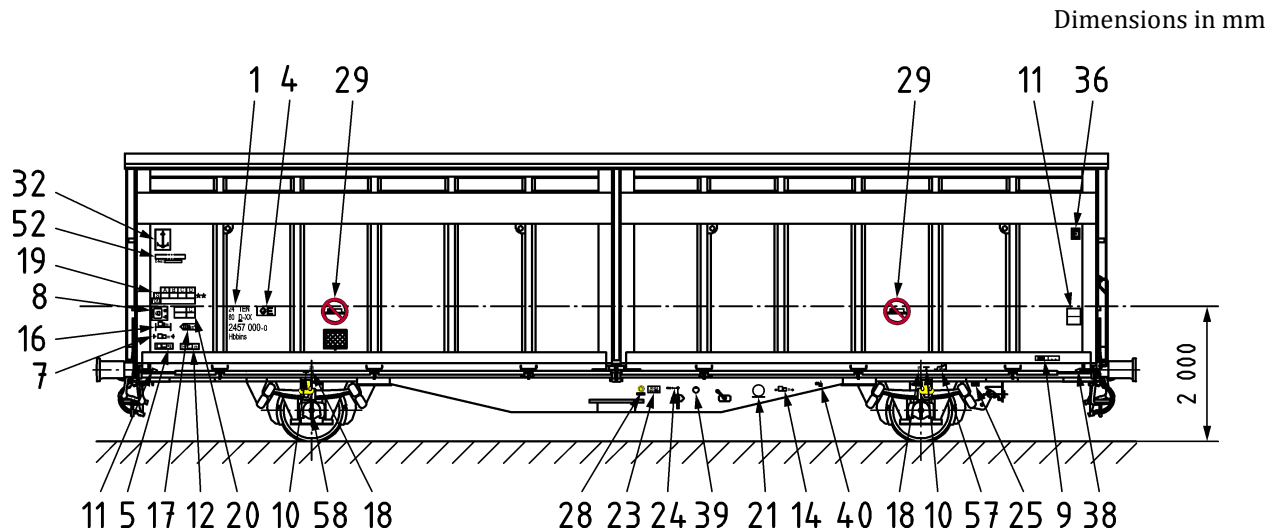
c) Side view tank wagon for the carriage of gases

Key

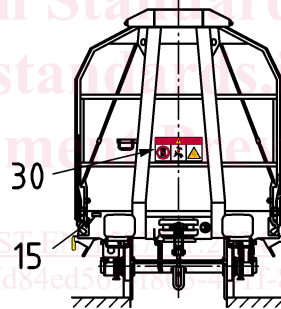
- 1-60 See Table 1
- a Details of the tank identification plate are specified in EN 12561-1:2011.

Figure 1 — Positioning of markings for rail tank wagons

Where movable panels are used, the name of the gas being carried (position no. 52) and the maximum permissible payload for the gas shall be written on the same panel but shall not exceed the maximum permissible loads as indicated on the tank identification plate or the maximum of the load table position no. 19.



a) Side view



b) Front view

Key

1-58 See Table 1.

Figure 2 — Positioning of markings for rail wagons

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Table 1 shows the list of markings positioned in Figure 1 and Figure 2.

Table 1 — List of markings

Position no.	Marking title	Figure no.
1	European vehicle number (EVN) – dimensions	4 a)
2	European vehicle number (EVN) – alternative layouts	5
3	European vehicle number – at tank bottom ^a	–
4	Additional marking for compliancy with TSI WAG	7
5	Wagon tare mass	8
6	Wagon tare mass and braked weight of the parking brake	9, 10
7	Length over buffers	11
8	Gauge marking	12
9	Table of maintenance dates	14
10	Lifting and jacking point	15a,b
11	Lifting and jacking point – rerailing	15c
12	Minimum curve radius	16
13	Maximum ramp angle	17
14	Distance of bogie pivots	18
15	Buffer stroke	19
16	Loading length	20
17	Loading area	21
18	Wheelset position	25
19	Payload table ^a	26
20	Special additional payload table	27
21	Maximum carrying capacity	30
22	General brake marking	34
23	Type of brake system and braked weight of wagons with automatic load proportional brake	35
24	Distributor-isolating device handle	37
25	Type plate of weighing valve	49
26	Holding force of the parking brake	51
27	Maximum track gradient of parking brake for wagons with composite brake blocks	52
28	Wagon fitted with composite brake blocks	53
29	Restriction to move with open doors or roof	59
30	Warning: overhead power line ^a	63