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

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

Bahnanwendungen - Kennzeichnung von
Schienenfahrzeugen - Teil 1: Güterwagen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 256.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (prEN 15877-1:2022) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN enquiry.

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

In comparison with the previous edition, the following technical modifications have been made:

- Update document template;
- New document structure;
- Editorial revision;
- Update normative references;
- Revision of markings;
- Supplement of new markings;
- Deletion of unused markings;
- Update Annex ZA;
- Update Bibliography.

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

For relationship with EU Directive(s) / Regulation(s), see informative Annex ZA, which is an integral part of this document.

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 vehicles in a clear and concise manner. Among those markings are safety signs used to alert equipment operators to hazards that may be encountered in the use or maintenance of the vehicles.

The standard consists of two parts:

- Part 1: *Freight wagons*;
- Part 2: *External Markings on Coaches, Motive Power Units, Locomotives and On Track Machines*.

In addition to the markings shown 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.

The standard 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 railway vehicles.

[oSIST prEN 15877-1:2022](https://standards.iteh.ai/catalog/standards/sist/d84ed569-f803-441f-8415-6da8119e7ded/osist-pren-15877-1-2022)

<https://standards.iteh.ai/catalog/standards/sist/d84ed569-f803-441f-8415-6da8119e7ded/osist-pren-15877-1-2022>

1 Scope

This document identifies the information required to be marked on heavy rail freight wagons, or parts of heavy rail freight wagons, relating to their technical, operational and maintenance 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 a note(s) where appropriate.

Tank barrel manufacturers' design criteria, test and product specification plates have not been considered in this document as they are specified in EN 12561-1:2011, *Railway applications — Tank wagons — Part 1: Identification plates for tank wagons for the carriage of dangerous goods*.

Where fully specified in RID (Regulations concerning the International Carriage of Dangerous Goods) 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, *Railway applications - Structural requirements of railway vehicle bodies - Part 2: Freight wagons*¹

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

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 17343:2020, *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 being amended. For the application of EN 15877-1, reference is made to EN 12663-2:2010/prA1:2022.

3 Terms definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 17343:2020 and the following apply.

ISO and IEC maintain terminological 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

k

luminance of colour L_1 (luminance of background or largest part of the field of view) divided by the luminance of colour L_2 (luminance of the object) where L_1 is greater than L_2

$$k = \frac{L_1}{L_2}$$

[SOURCE: IEC 60050-845:1987, 845-02-47]

3.1.4

luminance factor

β

ratio of the luminance of the surface element in a given direction to that of a perfect reflecting or transmitting diffuser identically illuminated

3.1.5

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

3.1.6

paint

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

3.1.7

railway vehicle

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

3.1.8**stencil**

template for the required lettering

3.1.9**tare**

reference weight; here weight of a railway vehicle without fuel or payload

Note 1 to entry: To follow common practice, "weight" is used throughout this standard as kilogramme or tonne.

3.1.10**vehicle**

vehicle is the smallest part in a train (a single vehicle)

Note 1 to entry: It features an individual body shell lying on its own sets of bogies or wheels or sharing them with adjacent vehicles

3.1.11**wagon****freight wagon**

trailer to carry freight

3.2 Abbreviations

Term	Definition
AC	Alternate current
ATP	Automatic Train Protection
CER	Community of European Railways and Infrastructures Companies.
CIE	International Commission on Illumination, Vienna, Austria. http://www.cie.co.at/cie/
COTIF	Convention concerning International Carriage by Rail
CR	Conventional Rail System
DC	Direct current
EFTA	European Free Trade Association
ERA	European Railway Agency
EU	European Union
EVN	European Vehicle Number
IM	Infrastructure Manager
OSJD	Warsaw based Organization for Collaboration between Railways
OTIF	Intergovernmental Organization for International Carriage by Rail
PPV/PPW	OSJD Rules for International Operation of Wagons and Coaches
RAL	Colour standardization system of the German Institute for Quality Assurance and Certification

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RID	RID means the Regulations concerning the International Carriage of Dangerous Goods
RIV	“RIV” means the agreements between Railway Undertakings governing the exchange and use of wagons between railway undertakings
RST	Rolling stock
RU	Railway Undertaking
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
UIP	International Union of Private Wagon Owners
UIRR	International Union of Combined Road-Rail Transport Companies
UNIFE	Union of the European Railway Industries
UITP	International Association of Public Transport
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

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 rail surface². 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.

² For the assessment of the location criteria, the ground level should not to be lower than 200 mm below the rail surface; in accordance with anthropometric data, the eye level of the reading person should not to be less than 1 500 mm.

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 outer line shall give a contrast to the marking and shall be at least in the size of the outer line and not less than 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 80000-1:2013, e.g. 7.1.4.)

4.1.9 The dimensions indicated in this document may have a tolerance of plus or minus 10 % when hand produced. 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 The inscription panel may be replaced by applying the requisite markings directly to the sidewall or tank.

4.2 Colour

4.2.1 Colours used shall conform to 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 k shall conform to ISO 3864-4:2011.

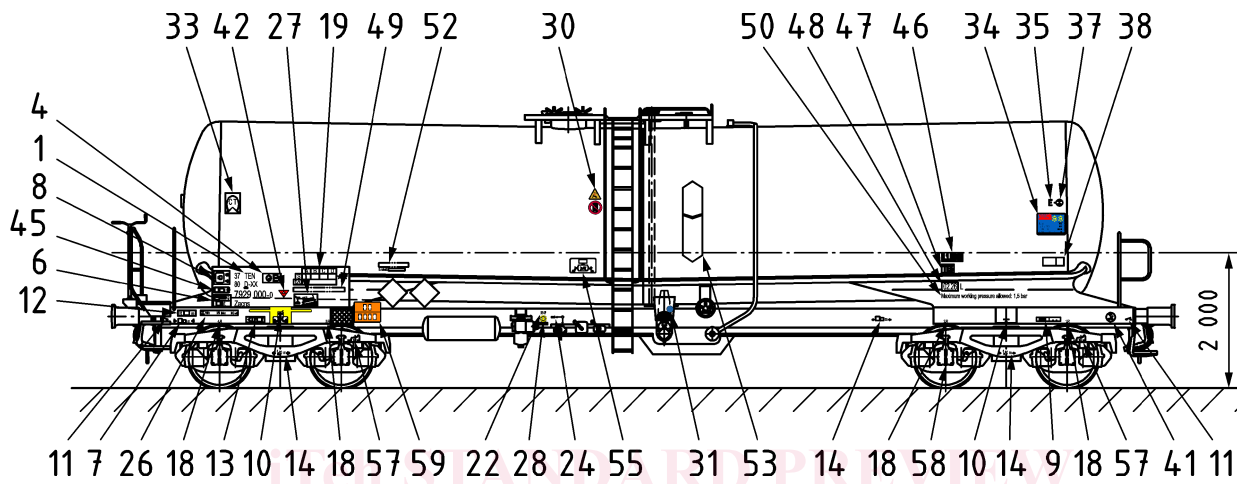
4.2.4 If there is no colour specification indicated with the specification of a marking, the colour of the informative part (the symbol, letters/numbers, borders and lines) shall be black on a light background or white on a dark background. The background for decals, stencils and painted markings may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

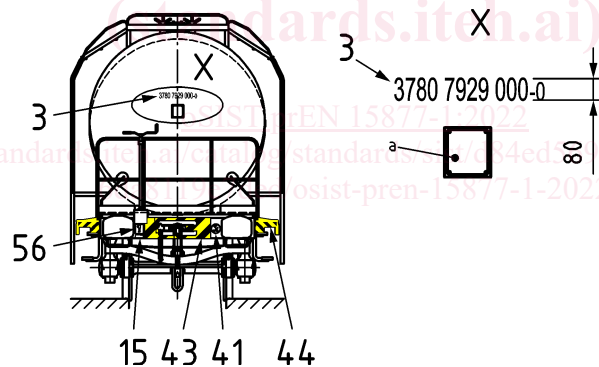
Where applicable, markings shall be positioned generally according to Figure 1 and Figure 2. The list of markings is contained in the table under 4.4 and their position and meaning described in 4.5. Not all markings can be accommodated in the figures.

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

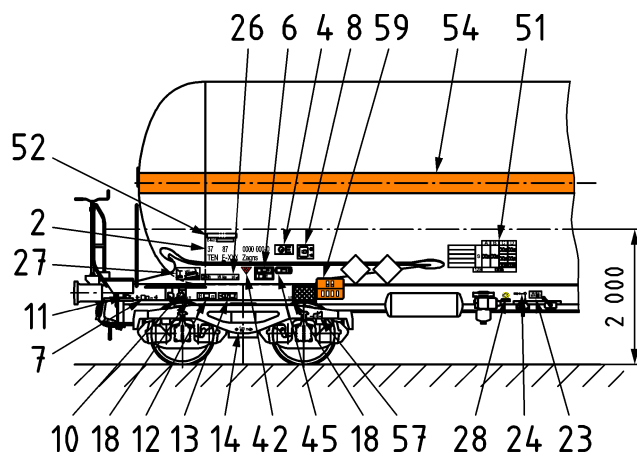
A marking indicating a lever, a button, a nozzle, an indicator, hidden equipment or a point for action (e.g. a lifting point) shall be located next to that item (normally above, beneath or on the cover concealing the item) and may not lead to any misunderstanding or confusion.



a) Side view



b) Front view



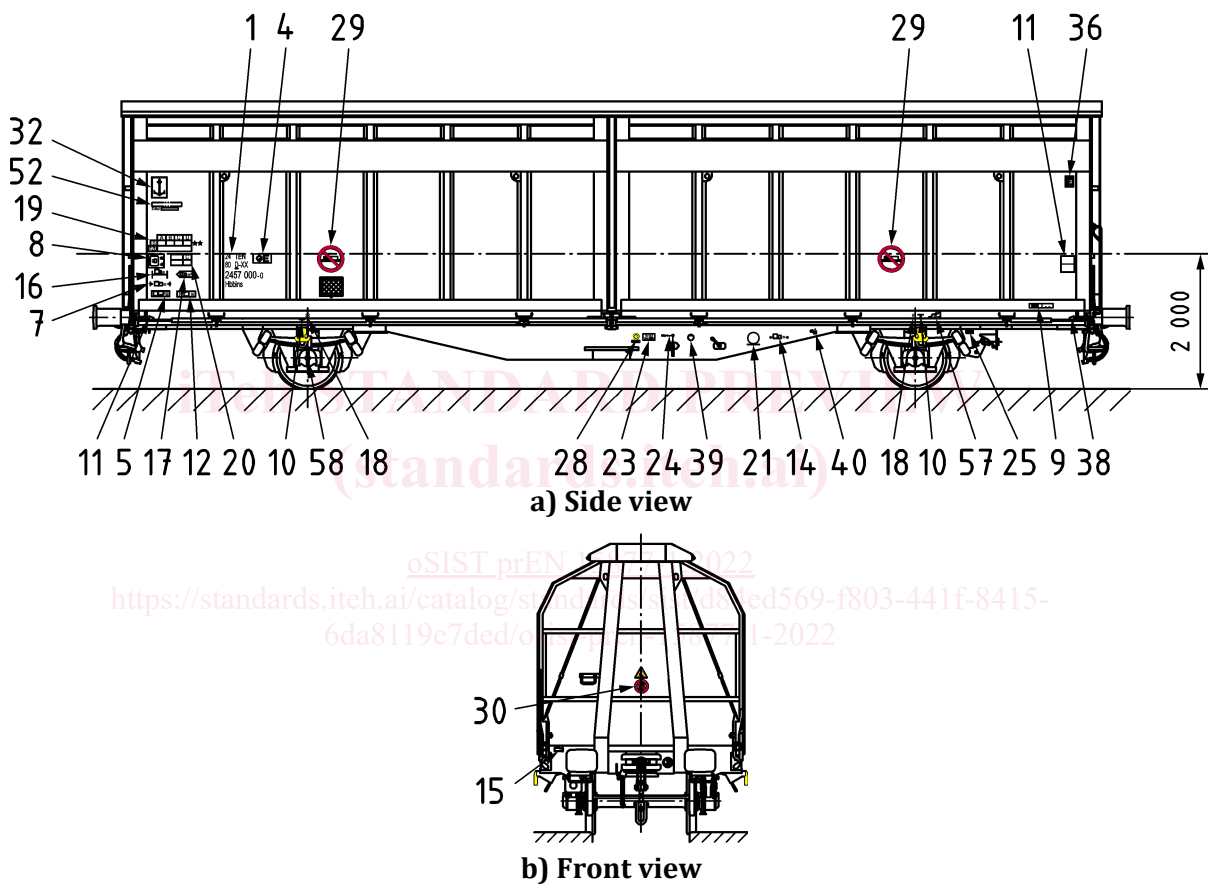
c) Side view gas wagon

Key

- 1-59 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 substance transported Position No. 52 and the maximum permissible load weight for that substance should 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. 4.



Key

- 1-59 See Table 1

Figure 2 — Positioning of markings for rail wagons

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)	4a
2	European vehicle number (EVN) - alternative layout	5b
3	European vehicle number - at tank end ^a	-

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Position No.	Marking Title	Figure No.
4	"GE" or "'CW" marking	7
5	Wagon tare weight	8
6	Wagon tare and braked weight of the platform operated parking brake	9
7	Length over buffers	11
8	Gauge marking	12a
9	Table of maintenance dates	14a
10	Lifting and jacking point without running gear	15a
11	Lifting and jacking point for 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	Floor area	21
18	Wheelset number	25
19	Payload table	26
20	special additional payload table	27
21	Max. carrying capacity	30
22	General brake marking	34
23	Braked weight of wagons with automatic load proportional brake	35
24	distributor valve 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	Marking with prohibition to move with open doors or roof	59
30	Warning arc flash by near to railway overhead power line ^a	63
31	Earthing connection point	65
32	Wagon accepted on train-ferries	66
33	Wagon accepted for running through the Channel Tunnel ^a	67
34	Wagon fitted with a vacuum brake ^a	68
35	Wagon able to run between Spain/Portugal and France ^a	70
36	Wagons built for running on 1 524 mm gauge railway networks ^a	73

Position No.	Marking Title	Figure No.
37	Wagon with automatic changeover wheelsets between 1 435 mm and 1 668 mm track gauges ^a	75
38	Agreement of traffic acceptance	78
39	Spark arrestor plates	98
40	Removable wagon equipment	99
41	High strength coupling	100
42	Wagon which need special care when being shunted	102
43	Wagon is equipped with anti-crash-components	105
44	Projected tow hooks projecting more than 250 mm	108
45	Volumetric capacity of tank wagon	109
46	Tank code ^a	110
47	Provision code ^a	111
48	Next tank inspection date ^a	112
49	Name of the substance ^a	113
50	Maximum working pressure allowed ^a	114
51	Payload table for different gases (instead of moveable flaps) ^a	116
52	Registered keeper	117
53	Residue discharge and auto vent valve ^a	119
54	Orange stripe for gas wagon ^a	122
55	Protection of inner lining of tank or bulk vessel ^a	125
56	Derailment Detector	127
57	Maximum wheel set diameter	128
58	Wheel able to withstand high thermal stresses	129
59	UN-no. of transported dangerous substance	-

^a These inscriptions could be located in exceptional cases higher than 2 m above rail surface.

4.4 Details of vehicle markings

4.4.1 General

The shown markings in this document are exemplarily displayed in Univers 67.

Where inscriptions are based on existing, measured or particular defined values, these values in the figures are substituted by placeholders as shown in Figure 3:

- For digits the placeholders are shown as rectangles with dashed lines and rounded edges.
- For letters the placeholders are shown as rectangles with dashed lines.
- For words, letter-combinations or sentences the placeholders are shown as rectangles with dot and dash lines.