SLOVENSKI STANDARD
SIST EN 1846-2:2025

01-februar-2025

Nadomešča:
SIST EN 1846-2:2010+A1:2013

Gasilska in reševalna vozila - 2. del: Splošne zahteve - Varnost in obnašanje pri uporabi

Firefighting and rescue service vehicles - Part 2: Common requirements - Safety and performance

Feuerwehrfahrzeuge - Teil 2: Allgemeine Anforderungen - Sicherheit und Leistung

Véhicules des services de secours et de lutte contre l'incendie - Partie 2 : Prescriptions communes - Sécurité et performance

Ta slovenski standard je istoveten z: **EN 1846-2:2024**

ICS:

13.220.10	Gašenje požara	Fire-fighting
43.160	Vozila za posebne namene	Special purpose vehicles

SIST EN 1846-2:2025 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1846-2

December 2024

ICS 13.220.10

Supersedes EN 1846-2:2009+A1:2013

English Version

Firefighting and rescue service vehicles - Part 2: Common requirements - Safety and performance

Véhicules des services de secours et de lutte contre l'incendie - Partie 2 : Exigences communes - Sécurité et performance

Feuerwehrfahrzeuge - Teil 2: Allgemeine Anforderungen - Sicherheit und Leistung

This European Standard was approved by CEN on 1 December 2024.

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

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

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Ref. No. EN 1846-2:2024 E

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European foreword

This document (EN 1846-2:2024) has been prepared by Technical Committee CEN/TC 192 “Fire and rescue service equipment”, the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by June 2025 and conflicting national standards shall be withdrawn at the latest by June 2025.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 1846-2:2009+A1:2013.

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.

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

EN 1846 consists of the following parts, under the general title *Firefighting and rescue service vehicles*:

— *Part 1: Nomenclature and designation;*

— *Part 2: Common requirements — Safety and performance;*

— *Part 3: Permanently installed equipment — Safety and performance.*

A list of all parts in a series can be found on the CEN website.

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

— the normative references have been updated and dated;

— the definitions 3.2 (gross laden mass), 3.12 (loss of stability), 3.13 (cabin) and 3.15 (working platform) have been updated;

— the definitions 3.17 (performance level), 3.18 (power take-off), 3.19 (design check), 3.20 (calculation), 3.21 (visual verification), 3.22 (measurement), 3.23 (functional test) and 3.24 (special verification) have been added;

— the list of significant hazards has been moved to the new Annex K;

— all notes recalling Directives and Regulations references have been removed;

— 4.1.1.2 (Energy sources) and 4.1.1.3 (Hot/cold part) have been added;

— 4.1.1.5.2, verification (Gradient capability) has been updated for category 3 vehicles;

— 4.1.1.6, new title “Main power supply” and requirements updated;

— 4.1.1.10 (Reversing of vehicle) has been updated;

— 4.1.2.2.1 (Construction) has been completed with requirements for ROPS;

— 4.1.2.2.2 (crew protection) has been updated;

— 4.1.2.2.3, new title “Cabins designed to take self-contained breathing apparatus (SCBA)” and requirements updated;

— 4.1.2.2.4 (Seating position) has been updated;

— 4.1.2.2.7 (Accommodation) has been updated;

— 4.1.2.2.7, Figure 9 has been amended and a new Figure 10 has been added;

— 4.1.2.3.2 (Access to crew compartments), addition of requirements in case of access with more than two steps;

— 4.1.2.3.3 (Access to equipment other than roof mounted) has been updated;

— 4.1.2.3.4 (Access to the roof and working platforms) has been updated;

— 4.1.2.3.5 (Design of the roof and working platforms for access purposes if applicable) has been updated;

— 4.1.2.4.1 (Equipment lockers – General) has been amended;

— 4.1.2.4.2 (Drawers and stowage trays or other stowage devices in lockers) has been updated;

— 4.1.3.1 (Electrical equipment – General) has been updated;

— 4.1.3.2 (Batteries) has been updated;

— 4.1.3.3 (Lighting) has been updated;

— 4.1.4.1 (Control system) has been completed with the Recommended Performance Levels (PL_r);

— 4.1.4.2 (Remote control) has been amended;

— 4.2.1.2, Table 5 (Geometric dimensions) has been updated;

— 4.2.1.3, Table 6 (Dynamic performances) has been amended;

— 4.2.1.4, new title “Driving of permanently installed equipment by the vehicle power source” and requirements updated;

— 4.2.1.5 (Driven components), the verification has been amended;

— 4.2.1.8 new title “Traction” and requirements updated;

— 4.2.1.9 new title “Energy storage and range” and requirements updated;

— 4.2.2.2.1 (Cabin – General) has been amended;

— 4.2.2.2.3 (Seating positions) verification has been amended;

— 4.2.2.3.2 (Equipment storage) has been completed with addition of recommendations and visual verification;

— 4.2.3.1 (Electrical equipment – General) has been updated;

— 4.2.3.2 (Electrical power supply) has been updated;

— 4.2.3.4 (Emergency warning equipment) the note has been amended;

— 4.2.6 (Heat resistance of vulnerable organs) and its corresponding verification have been added;

— 5.2 d) and 5.2 e) (Instruction handbook) have been updated;

— 5.4.2 (Other markings) has been completed regarding electrical fuses;

— Annex C (Different methods of determining levels of slip-resistance) has been updated;

— Annex D (Removal heights from equipment lockers) has been amended;

— Annex F (noise test code) has been amended;

— Annex I (Tests for ROPS of the cabin) and Annex J (Example of a ROPS design) have been added;

— Annex ZA (Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC aimed to be covered) has been updated;

— editorial changes/improvements have been introduced.

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 organizations 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.

Introduction

This document is a type-C standard as stated in EN ISO 12100.

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

— machine manufacturers (small, medium and large enterprises);

— health and safety bodies (regulators, accident prevention organizations, market surveillance, etc.).

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

— machine users/employers (small, medium and large enterprises);

— machine users/employees (e.g. trade unions, organizations for people with special needs);

— service providers, e.g. for maintenance (small, medium and large enterprises);

— consumers (in the case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.

The machinery concerned and the extent to which hazards, hazardous situations or hazardous events are covered are indicated in the scope of this document.

When requirements of this type-C standard are different from those which are stated in type-A or type-B standards, the requirements of this type-C standard take precedence over the requirements of the other standards for machines that have been designed and built according to the requirements of this type-C standard.

While producing this document it was assumed that due to the European regulations on the approval of vehicles for use on public roads, fire fighting vehicles still comply with EMC requirements. Therefore, EMC is not further considered in this document.

1 Scope

1.1 This document specifies the common requirements for safety and the (minimum) common performance requirements of firefighting and rescue service vehicles as designated in EN 1846-1:2011.

NOTE 1 Categories and mass classes of these vehicles are given in EN 1846-1:2011.

NOTE 2 Vehicle means terrestrial vehicles that can also drive on rails and amphibious vehicles.

When drafting this document, it has been assumed that the finished standard automotive chassis (or the chassis designed in accordance with the same principles) that is the basis for the firefighting or rescue vehicle offers an acceptable safety level for its basic transport functions within the limits specified by the manufacturer. Therefore, this document does not formulate requirements for this chassis.

This document deals with all significant hazards, hazardous situations and events relevant to firefighting and rescue service vehicles, when they are used as intended and under the conditions of misuse which are reasonably foreseeable by the manufacturer.

Complementary specific requirements for aerial appliances are the subject of the following European Standards:

— EN 1777:2010: Hydraulic platforms (HPs) for firefighting and rescue services,

— EN 14043:2014: Turntable ladders with combined movements,

— EN 14044:2014: Turntable ladders with sequential movements.

NOTE 3 Additional regulations, not dealt with in this document, can apply in relation with the use of the vehicles on public roads.

This document deals with firefighting and rescue vehicles intended for use in a temperature range from –15 °C to +40 °C.

NOTE 4 In the case of utilization outside this temperature range, additional measures might be necessary as agreed between the manufacturer and the user. Such requirements are outside the scope of this document.

1.2 This document does not deal with the following types of firefighting or rescue vehicles or equipment:

— vehicles designed exclusively for carrying personnel;

— vehicles with a gross laden mass not exceeding 3 t;

— boats;

— aircraft;

— exclusively railway vehicles;

— ambulances (see EN 1789:2020+A1:2023);

— provisions for non-firefighting removable equipment driven by PTO;

— airport vehicles in the scope of the recommendations of the International Civil Aviation Organization (ICAO).

1.3 This document deals with the technical requirements to minimize the hazards listed in Annex K which can arise during operational use, routine checking and maintenance of firefighting and rescue service vehicles when carried out in accordance with the specifications given by the manufacturer or his authorized representative.

It does not cover the hazards generated by:

— non-permanently installed equipment i.e. portable equipment carried on the vehicle;

— use in potentially explosive atmospheres;

— commissioning and decommissioning;

— electromagnetic compatibility.

Additional measures not dealt with in this document might be necessary for specific use (e.g. fire in natural environment, flooding, etc.).

1.4 This document is not applicable to machines that are manufactured before its date of publication as a European Standard.

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 659:2003+A1:2008, *Protective gloves for firefighters*

EN 894-2:1997+A1:2008, *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 2: Displays*

EN 981:1996+A1:2008, *Safety of machinery — System of auditory and visual danger and information signals*

EN 1846-1:2011, *Firefighting and rescue service vehicles — Part 1: Nomenclature and designation*

EN 60204-1:2018, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2016)*

CEN/TS 15989:2015, *Firefighting and rescue service vehicles and equipment — Graphical symbols for control elements and displays and for markings*

EN ISO 3471:2008, *Earth-moving machinery — Roll-over protective structures — Laboratory tests and performance requirements (ISO 3471:2008)*

EN ISO 4871:2009, *Acoustics — Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)*

EN ISO 5353:1998, *Earth-moving machinery, and tractors and machinery for agriculture and forestry — Seat index point (ISO 5353:1995)*

EN ISO 11201:2010, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections (ISO 11201:2010)*

EN ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction (ISO 12100:2010)*

EN ISO 13849-1:2023, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2023)*

EN ISO 13857:2019, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2019)*

EN ISO 14120:2015, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards (ISO 14120:2015)*

HD 60364-7-717:2010, *Low-voltage electrical installations — Part 7-717: Requirements for special installations or locations — Mobile or transportable units (IEC 60364-7-717:2009, modified)*

ISO 3864-1:2011, *Graphical symbols — Safety colours and safety signs — Part 1: Design principles for safety signs and safety markings*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010 and EN 1846-1:2011 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp/

3.1
unladen mass
mass of the vehicle, including the driver (75 kg) and all items needed to operate the vehicle including a full capacity of cooling water, fuel and oil and all permanently installed equipment, but excluding the spare wheel and extinguishing agents

3.2
gross laden mass
GLM
unladen vehicle mass as defined in 3.1, plus the mass of the remainder of the crew, calculated as 90 kg for each crew member and his personal protective equipment, and additional 15 kg for the driver's personal protective equipment for which the vehicle is designed and the mass of the extinguishing agents and other equipment to be carried

3.3
permissible total laden mass
PTLM
maximum permitted gross laden mass as declared by the chassis manufacturer

3.4
approach angle
α
angle between the horizontal ground contact plane and the plane tangent to the tyres of the front wheels, such that no rigid part ahead of the first axle of the vehicle is located between these planes, measured when the vehicle is at its gross laden mass

Note 1 to entry: See Figure 1.

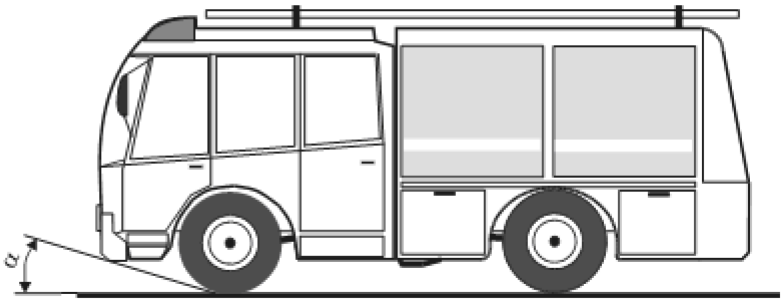

Figure 1

3.5
departure angle
ß
angle between the horizontal ground contact plane and the plane tangent to the tyres of the rearmost wheels such that no rigid part of the vehicle behind the last axle is between these planes, measured when the vehicle is at its gross laden mass

Note 1 to entry: See Figure 2.

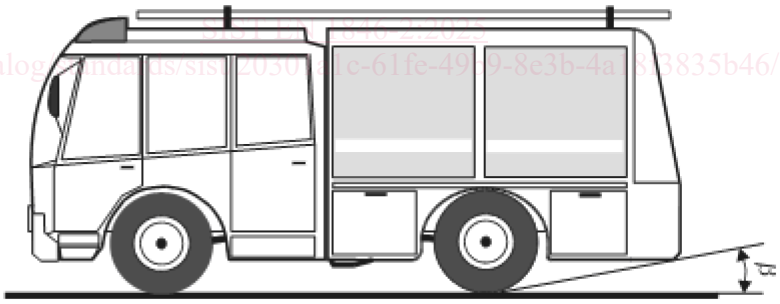

Figure 2

3.6
angle of slope
γ
smallest angle measured, when the vehicle is at its gross laden mass, between two planes tangential to the innermost front and rear tyres which intersect at the lowest rigid point or surface of the underside of the vehicle between these tyres

Note 1 to entry: See Figure 3.

Note 2 to entry: This angle defines the largest ramp over which the vehicle can pass.

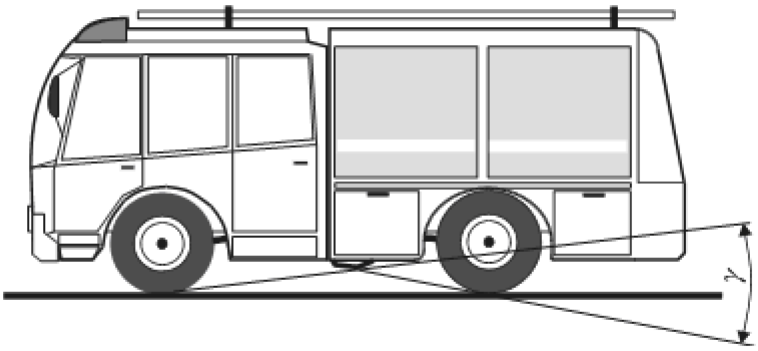

Figure 3

3.7
ground clearance
d
distance between the horizontal ground contact plane and the lowest fixed point on the vehicle, other than the axles, measured when the vehicle is at its gross laden mass

Note 1 to entry: See Figure 4.

Note 2 to entry: Multiple axle sets are considered as a single axle.

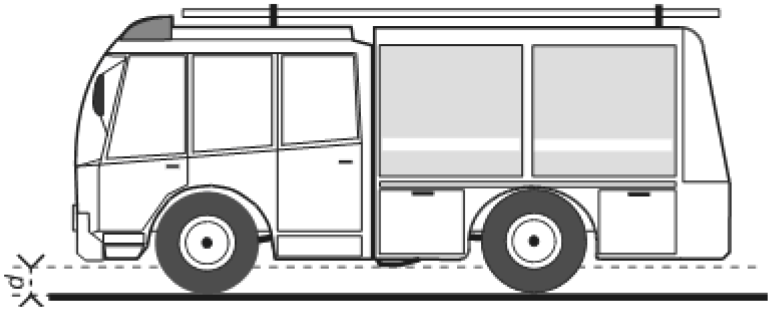

Figure 4