ICS 53.060 SLOVENSKÁ TECHNICKÁ NORMA Júl 2025

STN	**Terénne vozíky Bezpečnostné požiadavky a overovanie Časť 1: Vozíky s meniteľným dosahom**	**STN EN 1459-1** 26 8804

Rough-terrain trucks - Safety requirements and verification - Part 1: Variable-reach trucks

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 06/25

Obsahuje: EN 1459-1:2025

Oznámením tejto normy sa ruší
STN EN 1459-1+A1 (26 8804) z augusta 2020

140665

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1459-1

April 2025

ICS 53.060 Supersedes EN 1459-1:2017+A1:2020

English Version

Rough-terrain trucks - Safety requirements and verification - Part 1: Variable-reach trucks

Chariots tout-terrain - Prescriptions de sécurité et vérification - Partie 1 : Chariots à portée variable

Geländegängige Stapler - Sicherheitstechnische Anforderungen und Verifizierung - Teil 1: Stapler mit veränderlicher Reichweite

This European Standard was approved by CEN on 2 March 2025.

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

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Ref. No. EN 1459-1:2025 E

Contents

European foreword

This document (EN 1459-1:2025) has been prepared by Technical Committee CEN/TC 150 “Industrial Trucks - Safety”, 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of an identical text or by endorsement, at the latest by October 2025, and conflicting national standards shall be withdrawn at the latest by October 2025.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 1459-1:2017+A1:2020.

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

— requirements for trucks not fitted with an enclosed cab;

— update of normative references;

— other minor changes, mainly editorial clarifications of existing requirements.

EN 1459 consists of the following parts, under the general title Rough-terrain trucks — Safety requirements and verification:

— Part 1: Variable-reach trucks

— Part 2: Slewing variable-reach trucks

— Part 3: Interface between the variable-reach truck and the work platform

— Part 4: Additional requirements for variable-reach trucks handling suspended loads

— Part 5: Attachment interface

— Part 6: Application of EN ISO 13849-1 to slewing and non-slewing variable-reach rough-terrain truck (technical report)

— Part 8: Variable-reach tractors

— Part 9: Variable-reach trucks equipped with work platforms having a frontguard that can be opened

This document has been prepared under a standardization request given 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.

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.

Introduction

This document covers general safety requirements and the means for verification of these requirements for rough-terrain variable-reach trucks.

All quantities are in SI units, and this includes metric units.

This document is a type C standard as stated in EN ISO 12100:2010.

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

1 Scope

This document specifies the safety requirements of self-propelled rough-terrain variable-reach trucks (hereafter referred to as trucks), intended to handle loads, equipped with a telescopic lifting means (pivoted boom), on which a load handling device (e.g. carriage and fork arms) is fitted.

For the purpose of this document, rough-terrain variable-reach trucks are designed to transport, lift and place loads and can be driven on unimproved terrain.

Fork arms are considered to be part of the truck. Trucks can also be equipped with a variety of attachments (e.g. bale spikes, mowers, sweepers).

This document deals with all the significant hazards, hazardous situations and events relevant to the trucks when they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer (see Annex A).

This document does not apply to:

— slewing rough-terrain variable-reach trucks covered by EN 1459-2:2015+A1:2018;

— rough-terrain variable-reach tractors covered by CEN/TS 1459-8;

— industrial variable reach trucks covered by EN ISO 3691-2:2023;

— lorry-mounted variable-reach trucks covered by ISO 20297-1:2017;

— variable-reach trucks fitted with tilting or elevating operator position;

— mobile cranes covered by EN 13000:2010+A1:2014;

— machines designed primarily for earth moving, even if their buckets and blades are replaced with forks (see EN 474 series);

— trucks designed primarily with variable length load suspension elements (e.g. chain, ropes) from which the load may swing freely in all directions;

— trucks designed primarily for container handling;

— trucks on tracks;

— trucks with articulated chassis;

— attachments.

Determination and declaration of sound power level is not addressed by this document.

This document does not cover sales literature.

This document does not address hazards linked to:

— operation of the truck from a position other than the normal operating position or the remote control;

— hybrid power systems;

— gas power systems;

— gasoline engine systems;

— battery power systems.

This document does not address hazards which may occur:

a) when handling suspended loads which may swing freely (additional requirements are given in EN 1459-4:2020+A1:2025);

b) when using trucks on public roads;

c) when operating in potentially explosive atmospheres (additional requirements are given in EN 1755:2024);

d) when operating underground;

e) when towing trailers;

f) when fitted with a personnel work platform (additional requirements are given in EN 1459-3:2015 and EN 1459-9:2021);

g) when using system capable of controlling the speed of the truck as set by the operator (cruise-control).

This document does not provide a method of calculation for fatigue and strength of material.

This document is not applicable to trucks manufactured before the date of its publication.

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 1459-5:2020+A1:2025, *Rough-terrain trucks - Safety requirements and verification - Part 5: Attachment interface*

EN 12053:2001+A1:2008, *Safety of industrial trucks - Test methods for measuring noise emissions*

EN 12895:2015+A1:2019, *Industrial trucks - Electromagnetic compatibility*

EN 13059:2002+A1:2008, *Safety of industrial trucks - Test methods for measuring vibration*

EN 15000:2008, *Safety of industrial trucks - Self propelled variable reach trucks - Specification, performance and test requirements for longitudinal load moment indicators and longitudinal load moment limiters*

EN 15830:2012, *Rough-terrain variable reach trucks - Visibility - Test methods and verification*

EN 17314:2020, *Industrial trucks - Specifications and test methods - Operator restraint systems other than lap-type seat belts*

EN 60529:1991,[1] *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*

[1] Document impacted by EN 60529:1991/A1:2000 and EN 60529:1991/A2:2013.

EN IEC 62061:2021, *Safety of machinery - Functional safety of safety-related control systems (IEC 62061:2021)*

EN ISO 2860:2008, *Earth-moving machinery - Minimum access dimensions (ISO 2860:1992)*

EN ISO 2867:2011, *Earth-moving machinery - Access systems (ISO 2867:2011)*

EN ISO 3411:2007, *Earth-moving machinery - Physical dimensions of operators and minimum operator space envelope (ISO 3411:2007)*

EN ISO 3449:2008, *Earth-moving machinery - Falling-object protective structures - Laboratory tests and performance requirements (ISO 3449:2005)*

EN ISO 3457:2008, *Earth-moving machinery - Guards - Definitions and requirements (ISO 3457:2003)*

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

EN ISO 4413:2010, *Hydraulic fluid power - General rules and safety requirements for systems and their components (ISO 4413:2010)*

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

EN ISO 6682:2008, *Earth-moving machinery - Zones of comfort and reach for controls (ISO 6682:1986, including Amd 1:1989)*

EN ISO 6683:2008, *Earth-moving machinery - Seat belts and seat belt anchorages - Performance requirements and tests (ISO 6683:2005)*

EN ISO 7096:2020, *Earth-moving machinery - Laboratory evaluation of operator seat vibration (ISO 7096:2020)*

EN ISO 11688-1:2009, *Acoustics - Recommended practice for the design of low-noise machinery and equipment - Part 1: Planning (ISO/TR 11688-1:1995)*

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

EN ISO 13766-1:2018, *Earth-moving and building construction machinery - Electromagnetic compatibility (EMC) of machines with internal electrical power supply - Part 1: General EMC requirements under typical electromagnetic environmental conditions (ISO 13766-1:2018)*

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 13850:2015, *Safety of machinery - Emergency stop function - Principles for design (ISO 13850:2015)*

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

ISO 2328:2011, *Fork-lift trucks — Hook-on type fork arms and fork arm carriages — Mounting dimensions*

ISO 2330:2002, *Fork-lift trucks — Fork arms — Technical characteristics and testing*

ISO 3767-1:2016, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Symbols for operator controls and other displays — Part 1: Common symbols*

ISO 3795:1989, *Road vehicles, and tractors and machinery for agriculture and forestry — Determination of burning behaviour of interior materials*

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

ISO 3864-2:2016, *Graphical symbols — Safety colours and safety signs — Part 2: Design principles for product safety labels*

ISO 3864-3:2024, *Graphical symbols — Safety colours and safety signs — Part 3: Design principles for graphical symbols for use in safety signs*

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

ISO 5053-1:2020, *Industrial trucks — Vocabulary — Part 1: Types of industrial trucks*

ISO 6011:2023, *Earth-moving machinery — Visual display of machine operation*

ISO 6292:2020, *Powered industrial trucks and tractors — Brake performance and component strength*

ISO 7000:2019, *Graphical symbols for use on equipment — Registered symbols*

ISO 9244:2008,[2] *Earth-moving machinery — Machine safety labels — General principles*

ISO 9533:2010, *Earth-moving machinery — Machine-mounted audible travel alarms and forward horns — Test methods and performance criteria*

ISO 10263-2:2009, *Earth-moving machinery — Operator enclosure environment — Part 2: Air filter element test method*

ISO 10263-3:2009, *Earth-moving machinery — Operator enclosure environment — Part 3: Pressurization test method*

ISO 10263-4:2009, *Earth-moving machinery — Operator enclosure environment — Part 4: Heating, ventilating and air conditioning (HVAC) test method and performance*

ISO 11112:1995,[3] *Earth-moving machinery - Operator's seat - Dimensions and requirements*

ISO 12508:1994, *Earth-moving machinery — Operator station and maintenance areas — Bluntness of edges*

ISO 12509:2023, *Earth-moving machinery and rough-terrain trucks — Lighting, signalling and marking lights, and reflex reflectors*

ISO 13333:1994, *Earth-moving machinery — Dumper body support and operator's cab tilt support devices*

[2] Document impacted by ISO 9244:2008/A1:2016.
[3] Document impacted by ISO 11112:1995/A1:2001.

EN 1459-1:2025 (E)

ISO 15817:2012, *Earth-moving machinery — Safety requirements for remote operator control systems*

ISO 15818:2017, *Earth-moving machinery — Lifting and tying-down attachment points — Performance requirements*

ISO 15870:2000, *Powered industrial trucks — Safety signs and hazard pictorials — General principles*

ISO 16528-1:2007, *Boilers and pressure vessels — Part 1: Performance requirements*

ISO 16528-2:2007, *Boilers and pressure vessels — Part 2: Procedures for fulfilling the requirements of ISO 16528-1*

ISO 21507:2010, *Earth-moving machinery — Performance requirements for non-metallic fuel tanks*

ISO 22915-10:2023, *Industrial trucks — Verification of stability — Part 10: Additional stability test for trucks operating in the special condition of stacking with load laterally displaced by powered devices*

ISO 22915-14:2010, *Industrial trucks — Verification of stability — Part 14: Rough-terrain variable-reach trucks*

ISO 22915-20:2023, *Industrial trucks — Verification of stability — Part 20: Additional stability test for trucks operating in the special condition of offset load, offset by utilization*