



NSAI
Standards

Irish Standard
I.S. EN 1501-1:2021

Refuse collection vehicles - General requirements and safety requirements - Part 1: Rear loaded refuse collection vehicles

I.S. EN 1501-1:2021

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN 1501-1:2021

Published:

2021-03-31

This document was published under the authority of the NSAI and comes into effect on:

2021-04-18

ICS number:

43.160

NOTE: If blank see CEN/CENELEC cover page

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN 1501-1:2021 is the adopted Irish version of the European Document EN 1501-1:2021, Refuse collection vehicles - General requirements and safety requirements - Part 1: Rear loaded refuse collection vehicles

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

For relationships with other publications refer to the NSAI web store.

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This page is intentionally left blank

EUROPEAN STANDARD

EN 1501-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2021

ICS 43.160

Supersedes EN 1501-1:2011+A1:2015

English Version

Refuse collection vehicles - General requirements and safety requirements - Part 1: Rear loaded refuse collection vehicles

Véhicules de collecte de déchets - Exigences générales et exigences de sécurité - Partie 1 : Véhicules de collecte de déchets à chargement arrière

Abfallsammelfahrzeuge - Allgemeine Anforderungen und Sicherheitsanforderungen - Teil 1: Hecklader

This European Standard was approved by CEN on 15 February 2021.

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, 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, Turkey and United Kingdom.



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

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

EN 1501-1:2021 (E)

Contents	Page
European foreword.....	4
Introduction	6
1 Scope.....	8
2 Normative references.....	9
3 Terms and definitions	11
4 List of significant hazards	17
5 Safety requirements and protective measures	21
5.1 General.....	21
5.2 Danger Zones.....	21
5.2.1 General.....	21
5.2.2 Verification.....	23
5.3 Compaction mechanism.....	23
5.3.1 General.....	23
5.3.2 Interaction between bodywork and compaction mechanism	23
5.3.3 Hopper	23
5.3.4 Relationship between the compaction mechanism and the rave rail.....	24
5.3.5 Guide flap	24
5.3.6 Additional equipment(s)	24
5.3.7 Guards	24
5.3.8 Electro-sensitive protective equipment (ESPE).....	24
5.3.9 Controls for the compaction mechanism.....	25
5.4 Discharge system	25
5.4.1 Controls for discharge system	25
5.4.2 Operation conditions for the tailgate or discharge door.....	26
5.4.3 Operation conditions for emptying the body and the tailgate.....	26
5.4.4 Hinged adaptation frame	27
5.5 Requirements for the refuse container lifting device(s)	27
5.6 Position of the refuse container lifting device in relation to the compaction mechanism.....	27
5.7 Satellite vehicle.....	27
5.8 Hydraulic, pneumatic and electric systems.....	27
5.8.1 Hydraulic system.....	27
5.8.2 Pneumatic system	27
5.8.3 Electric system	28
5.9 Operating symbols.....	28
5.10 Riding on rear loaded RCV by operator(s).....	30
5.10.1 General.....	30
5.10.2 Cab	30
5.10.3 Footboard(s) and handles.....	31
5.11 Control systems	34
5.11.1 General requirements for safety circuits	34
5.11.2 Emergency stop devices.....	34
5.11.3 Control devices.....	35
5.12 Monitoring and warning.....	37
5.12.1 Closed circuit television system.....	37
5.12.2 Communication.....	37

5.12.3	Warnings.....	37
5.13	Electrical components.....	39
5.13.1	General	39
5.13.2	Protective interlocks.....	39
5.13.3	Two-hand operating controls.....	39
5.13.4	Overload protection.....	39
5.13.5	Energy interruption.....	39
5.13.6	Position sensors	39
5.13.7	Terminals and wire connections.....	39
5.13.8	Electric cables and wiring harness.....	39
5.13.9	Working lights	40
5.14	Requirements for maintenance.....	40
5.14.1	Unexpected start-up	40
5.14.2	Raised tailgate or discharge door or tilting body	40
5.14.3	Access and inspection door(s)	40
5.14.4	Cleaning.....	40
5.15	Stability and driving security.....	40
5.15.1	General	40
5.15.2	Stability in container lifting mode.....	41
5.15.3	Stability in discharging mode.....	41
5.15.4	Lateral stability	41
5.15.5	Minimum front axle mass	41
5.16	Exhaust pipe	41
5.17	Ventilation of the body	41
5.18	Vibration	41
5.18.1	Hand-arm vibration.....	41
5.18.2	Whole-body vibration	41
5.18.3	Uncertainty of vibration measurements.....	42
5.19	Noise control	42
6	Verification	43
7	Information for use.....	43
7.1	Instruction handbook	43
7.2	Maintenance	45
7.3	Spare parts list.....	46
7.4	Data sheet.....	46
7.5	Marking	46
Annex A (normative) Description of interfaces and systems		47
Annex B (normative) Open and closed systems - Footboard(s).....		50
Annex C (normative) Basic scenarios of different danger zones		60
Annex D (informative) Volumes		70
Annex E (informative) Illuminated areas		71
Annex ZA (informative) Relationship between this European Standard and the essential requirements of EU Directive 2006/42/EC aimed to be covered		72
Bibliography		77

EN 1501-1:2021 (E)

European foreword

This document (EN 1501-1:2021) has been prepared by Technical Committee CEN/TC 183 “Waste management”, 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 September 2021 and conflicting national standards shall be withdrawn at the latest by March 2022.

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 1501-1:2011+A1:2015.

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).

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

The main changes compared to the previous edition are listed below:

- document has been completely revised and partially restructured;
- European foreword and Introduction have been updated;
- Clause 1, Scope, has been slightly revised and clarified;
- Clause 2, Normative references, have been updated;
- in Clause 3 new terms and definitions have been added and others revised;
- Table 1 has been updated;
- Table 2 “Basic scenarios and applicable danger zones” and a completely new Annex C with multiple figures of danger zones has been added;
- previous Annex C “Technical file” has been deleted;
- requirements on footboards and handles (5.10.3), reversing (5.10.3.4.3), remote controls (5.11.3.5), monitoring and warning (5.12), stability (5.15), noise control (5.19) and many more have been revised or added;
- new Annex E “Illuminated areas” has been added;
- Annex ZA has been updated.

EN 1501 consists of the following parts under the general title *Refuse collection vehicles — General requirements and safety requirements*:

- *Part 1: Rear loaded refuse collection vehicles (this part)*;

- *Part 2: Side loaded refuse collection vehicles;*
- *Part 3: Front loaded refuse collection vehicles;*
- *Part 4: Noise test code for refuse collection vehicles;*
- *Part 5: Lifting devices for refuse collection vehicles.*

This document will be enforced at the same time as EN 1501-5:2021 and applied whenever the RCV is fitted with a lifting device.

For combinations of a rear loaded refuse collection vehicle with side and/or front loading capability the corresponding clauses of EN 1501-2:2021, EN 1501-3:2021 and EN 1501-5:2021 apply.

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).

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

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, Turkey and the United Kingdom.

EN 1501-1:2021 (E)

Introduction

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 organisations, 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, organisations 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 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.

This document is intended for careful consideration by designers, manufacturers, suppliers and users of rear loaded RCVs.

This document should be read in conjunction with EN 1501-5:2021 developed for lifting devices which are compatible with the refuse collection vehicle specified in this document.

While producing this document it was assumed that:

- for RCV the requirements of road traffic regulations apply. Where road traffic regulations are in conflict with the provisions of this standard, the road regulations have priority;
- due to the European regulations on the approval of vehicles for use on public roads, the requirements of UN/ECE R10:2019 for an RCV with regard to EMC applies. Therefore, EMC is not further considered in this standard;
- the guidelines issued by the chassis manufacturer have been taken into account;
- chassis related safety items are handled by the chassis manufacturer according to their state of the art and in compliance with the public road regulations;
- the guidelines of the lifting device manufacturer have been taken into account;
- based on measurements of different types of RCV hand-arm vibrations are in general lower than 2,5 m/s²;

- based on measurements on different types of RCV whole body vibrations are in general lower than 0,5 m/s²;
- components without specific requirements are designed in accordance with the usual engineering practice and calculation codes, including all failure modes, of sound mechanical and electrical construction and made of materials of adequate strength and of suitable quality;
- components are kept in good repair and working order, so that the required characteristics remain despite wear and tear;
- harmful materials, such as asbestos, are not used as part of the rear loaded RCV;
- only persons who have been appropriately trained will operate the rear loaded RCV.

EN 1501-1:2021 (E)

1 Scope

This document applies to rear loaded refuse collection vehicles (RCV), as defined in 3.2.

This document deals with all significant hazards, hazardous situations and events relevant to the rear loaded RCV, when it is used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer, throughout its foreseeable lifetime, as defined in Clause 4.

This document is applicable to the design and construction of the rear loaded RCV so as to ensure that it is fit for its intended function and can be operated, cleaned (including unblocking), adjusted and maintained during its entire lifetime. It is not applicable to the end of life of the rear loaded RCV.

This document describes and defines the safety requirements of rear loaded RCVs excluding the interface tailgate/discharge door with the lifting device(s) and the lifting device(s) itself and excluding loader cranes, which could be mounted on the RCV.

Safety requirements for the lifting device(s) and the interface with the tailgate/discharge door are defined in EN 1501-5:2021.

Safety requirements for loader cranes are defined in EN 12999:2020. Additional specific requirements to loader cranes installed on RCVs are defined in EN 1501-5:2021.

This document also applies to compactors, operated on a truck for collecting purposes.

This document is not applicable to:

- operation in severe conditions, e.g. extreme environmental conditions such as:
 - below $-20\text{ }^{\circ}\text{C}$ and above $+40\text{ }^{\circ}\text{C}$ temperatures;
 - tropical environment;
 - wind velocity in excess of 75 km/h ;
- contaminating environment;
- corrosive environment;
- operation in potentially explosive atmospheres;
- handling of loads the nature of which could lead to dangerous situations (e.g. hot refuses, acids and bases, radioactive materials, contaminated refuse, especially fragile loads, explosives);
- operation on ships.

This document is not applicable to machinery which is manufactured before the date of publication of this document by CEN.

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-