

## საქართველოს სტანდარტი

---

ნარჩენების მოსაგროვებელი ტრანსპორტი-ზოგადი და უსაფრთხოების  
მოთხოვნები-ნაწილი 5: ამწე მოწყობილობები ნარჩენების მოსაგროვებელი  
ტრანსპორტისათვის

საქართველოს სტანდარტებისა და მეტროლოგიის  
ეროვნული სააგენტო  
თბილისი

საინფორმაციო მონაცემები

1 შემუშავებულია საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს სტანდარტების დეპარტამენტის მიერ

2 დამტკიცებულია და შემოღებულია სამოქმედოდ საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს 2019 წლის 6 დეკემბრის № 98 განკარგულებით

3 მიღებულია გარეკანის თარგმნის მეთოდით სტანდარტიზაციის ევროპული კომიტეტის სტანდარტი ენ 1501-5:2011 „ნარჩენების მოსაგროვებელი ტრანსპორტიზოგადი და უსაფრთხოების მოთხოვნები-ნაწილი 5: ამწე მოწყობილობები ნარჩენების მოსაგროვებელი ტრანსპორტისათვის”

4 პირველად

5 რეგისტრირებულია საქართველოს სტანდარტების და მეტროლოგიის ეროვნული სააგენტოს რეესტრში: 2019 წლის 6 დეკემბერი №268-1.3-016578

დაუშვებელია წინამდებარე სტანდარტის სრული ან ნაწილობრივი კვლავწარმოება, ტირაჟირება და გავრცელება სსიპ საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს ნებართვის გარეშე

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

EN 1501-5

August 2011

ICS 43.160

Supersedes EN 1501-1:1998+A2:2009

English Version

Refuse collection vehicles - General requirements and safety  
requirements - Part 5: Lifting devices for refuse collection  
vehicles

Bennes de collecte des déchets - Exigences générales et  
exigences de sécurité - Partie 5: Lève-conteneurs pour  
bennes de collecte des déchets

Abfallsammelfahrzeuge und die dazugehörigen  
Schüttungen - Allgemeine Anforderungen und  
Sicherheitsanforderungen - Teil 5: Schüttungen für  
Abfallsammelfahrzeuge

This European Standard was approved by CEN on 11 June 2011.

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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

## Contents

	Page
<b>Foreword</b> .....	<b>6</b>
<b>Introduction</b> .....	<b>7</b>
<b>1 Scope</b> .....	<b>8</b>
<b>2 Normative references</b> .....	<b>8</b>
<b>3 Terms and definitions</b> .....	<b>11</b>
<b>4 List of significant hazards</b> .....	<b>17</b>
<b>5 Safety requirements and/or protective measures</b> .....	<b>21</b>
<b>5.1 General</b> .....	21
<b>5.2 Requirements for lifting the designated waste containers</b> .....	24
<b>5.3 Specific requirements for waste container lifting devices mounted on rear loaded RCVs</b> .....	29
<b>5.4 Specific requirements for waste container lifting devices mounted on side and front loaded RCVs</b> .....	31
<b>5.5 Hydraulic system</b> .....	32
<b>5.6 Pneumatic system</b> .....	32
<b>5.7 Electrical powered system</b> .....	32
<b>5.8 Operating symbols</b> .....	32
<b>5.9 Control systems</b> .....	35
<b>5.10 Visual control</b> .....	36
<b>5.11 Electrical components</b> .....	37
<b>5.12 Working light(s)</b> .....	38
<b>5.13 Electromagnetic compatibility (EMC)</b> .....	38
<b>5.14 Noise</b> .....	38
<b>5.15 Maintenance</b> .....	38
<b>5.16 Lifting points</b> .....	39
<b>5.17 Signals and warning devices</b> .....	39
<b>6 Verification</b> .....	<b>39</b>
<b>7 Information for use</b> .....	<b>39</b>
<b>7.1 Signals and warning devices</b> .....	39
<b>7.2 Operation manual</b> .....	39
<b>7.3 Maintenance</b> .....	41
<b>7.4 Data sheet</b> .....	41
<b>7.5 Marking</b> .....	41
<b>Annex A (normative) Functional spaces, dimensions and connections</b> .....	<b>43</b>
<b>Annex B (informative) Types of special containers and their pick-up systems</b> .....	<b>75</b>
<b>Annex C (normative) Requirements for pin connections and data sheets</b> .....	<b>81</b>
<b>Annex ZA (informative) Relationship between this Standard and the Essential Requirements of EU Directive 2006/42/EC</b> .....	<b>86</b>
<b>Bibliography</b> .....	<b>87</b>

Figures	Page
Figure A.1-1 — Rear mounted waste container lifting device .....	43
Figure A.1-2 — Side mounted waste container lifting device.....	44
Figure A.1-3 — Front mounted waste container lifting device .....	45
Figure A.1-4 — Rear loaded RCV with winch and skip container .....	46
Figure A.1-5 — RCV with loader crane and top lifted and bottom emptied container .....	47
Figure A.1 — Types of RCVs, working stations, functional and visible spaces.....	47
Figure A.2-1 — Standard comb and guide system for waste containers according to EN 840-1 to -3 ..	48
Figure A.2-2 — Standard comb and guide system for waste containers according to EN 840-1 to -3, when identification systems according to EN 14803 are used .....	49
Figure A.2-3 — Standard wide comb and guide system for containers according to EN 840-4 .....	50
Figure A.2-4 — Standard comb and guide system for containers according to EN 840-4, when identification systems according to EN 14803 are used.....	51
Figure A.2-5a — Locking system for EN 840 forms A and B .....	52
Figure A.2-5b — Locking system for EN 840 form C .....	52
Figure A.2-5 — Locking system for comb pick-up system .....	52
Figure A.2 — Standard combs and guide systems .....	53
Figure A.3-1 — Pushing pad for containers according to EN 840-1, EN 840-2 and EN 840-3 .....	54
Figure A.3-2 — Pushing pad for containers according to EN 840-4 .....	55
Figure A.3 — Pushing pads for comb pick-up system.....	55
Figure A.4-1 — Trunnion pick-up system for containers according to EN 840-2 and EN 840-3 .....	56
Figure A.4-2 — Trunnion pick-up system for containers according to EN 840-4 .....	57
Figure A.4-3 — Trunnion pick-up system for container according to EN 12574-1 with dome lid.....	58
Figure A.4-4 — Double trunnion lifting system for containers according to EN 12574-1 .....	59
Figure A.4 — Trunnion pick-up system .....	59
Figure A.5.1a — All views of single version .....	60
Figure A.5.1b — Rear view of double version .....	60
Figure A.5-1 — Diamond pick-up system .....	60
Figure A.5-2 — Diamond pick-up system locking device .....	61
Figure A.5 — Diamond pick-up system.....	61
Figure A.6 — BG pick-up system for containers according to EN 840-4 .....	62
Figure A.7-1 — Pocket pick-up system and lid opener .....	63
Figure A.7-2 — Pocket pick-up system and lid opener for EN 12574-1 pocket containers (Type 3) .....	64
Figure A.7 — Pocket pick-up systems .....	64
Figure A.8 — Limit of the functional space of the interchangeable waste container lifting device in rear loaded RCV's tailgate for lifting EN 840-1, EN 840-2, EN 840-3 or diamond containers.....	65
Figure A.9 — Entrance protection in automatic mode .....	66

Figure A.10-1 — Opening of single-chamber rear loaded RCV for interchangeable waste container lifting device .....	67
Figure A.10-2 — Opening of multi-chamber rear loaded RCV for interchangeable waste container lifting device .....	68
Figure A.10 — Openings of rear loaded RCVs for interchangeable waste container lifting device .....	68
Figure A.11-1 — Mounting frame of interchangeable waste container lifting device for single-chamber rear loaded RCV .....	69
Figure A.11-2 — Mounting frames of interchangeable waste container lifting devices for multi-chamber rear loaded RCV .....	70
Figure A.11 — Mounting frame of interchangeable waste container lifting devices for rear loaded RCV .....	70
Figure A.12 — Positions of hydraulic and electric connectors for interchangeable waste container lifting device .....	71
Figure A.13-1 — 16-pole floating plug (location 2 on Figure A.12) .....	72
Figure A.13-2 — 16-pole socket (location 2 on Figure A.12) .....	73
Figure A.13 — Electric 16-pole connectors for interchangeable waste container lifting device .....	73
Figure A.14 — Pin connections between interchangeable waste container lifting device and RCV — Emergency and CleAN OPEN loops .....	74
Figure B.1-1 — Paladin container .....	75
Figure B.1-2 — Diamond containers .....	76
Figure B.1 — Non European standardized containers .....	76
Figure B.2 — Example of catch for skip container lifted by a winch or a two chains skip pick-up system .....	77
Figure B.3-1 — Two chains skip container pick-up system .....	78
Figure B.3-2 — Four chains skip container pick-up system .....	78
Figure B.3 — Chains skip container pick-up system .....	78
Figure B.4-1 — Detail tooth 4.1 (universal teeth) see also Figures A.2-1 to -4 .....	79
Figure B.4-2 — Detail tooth 4.2 (specific teeth for container EN 840-2 and -3) see also Figures A.2-1 to -4 .....	79
Figure B.4-3 — Perspective with rounded borders and corners .....	79
Figure B.4 — Profiles of comb teeth .....	79
Figure B.5-1 — Warning label: Do not reach into moving parts .....	80
Figure B.5-2 — Warning label: Do not stand under any moving part .....	80
Figure B.5 — Safety labels .....	80
Figure B.6 — Warning sign: Falling container or object .....	80

Tables	Page
<b>Table 1 — List of significant hazards .....</b>	<b>18</b>
<b>Table 2 — Graphical symbols .....</b>	<b>33</b>
<b>Table Figure A.2.....</b>	<b>53</b>
<b>Table Figure A.3-1 .....</b>	<b>54</b>
<b>Table Figure A.3-2 .....</b>	<b>55</b>
<b>Table Figure A.4-1 .....</b>	<b>56</b>
<b>Table Figure A.4-2 .....</b>	<b>57</b>
<b>Table Figure A.4-3 .....</b>	<b>58</b>
<b>Table Figure A.4-4 .....</b>	<b>59</b>
<b>Table Figure A.5-1 .....</b>	<b>60</b>
<b>Table Figure A.5-2 .....</b>	<b>61</b>
<b>Table Figure A.6.....</b>	<b>62</b>
<b>Table Figure A.7-1 .....</b>	<b>63</b>
<b>Table Figure A.7-2 .....</b>	<b>64</b>
<b>Table Figure A.8.....</b>	<b>65</b>
<b>Table Figure A.10-1 .....</b>	<b>67</b>
<b>Table Figure A.10-2 .....</b>	<b>68</b>
<b>Table Figure A.11-1 .....</b>	<b>69</b>
<b>Table Figure A.11-2 .....</b>	<b>70</b>
<b>Table Figure B.1-1 .....</b>	<b>75</b>
<b>Table Figure B.2.....</b>	<b>77</b>
<b>Table Figure B.4.....</b>	<b>79</b>
<b>Tables C.1 — Pin connection for the connectors defined in A.13.....</b>	<b>81</b>
<b>Table C.1 a — List of signals from RCV: 16-pin socket (fixed on RCV).....</b>	<b>81</b>
<b>Table C.1 b — List of signals from waste container lifting device: 16-pin plug (with cable from lifting device).....</b>	<b>82</b>
<b>Table C.1 c — List of signals from waste container lifting device: 16-pin socket (fixed on lifting device) .....</b>	<b>83</b>
<b>Table C.1 d — List of signals from RCV: 16-pin plug (with cable from RCV).....</b>	<b>84</b>
<b>Table C.2 — Signal processing chronogram footstep(s). Pins 13,16, 3 and 4 of Tables C.1c and C.1d.</b>	<b>85</b>
<b>Table C.3 — Data sheet: Lifting device data.....</b>	<b>85</b>

## Foreword

This document (EN 1501-5:2011) 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 February 2012, and conflicting national standards shall be withdrawn at the latest by February 2012.

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

This document together with EN 1501-1:2011 supersedes EN 1501-1:1998+A2:2009.

It also updates and improves the description of and the requirements for the lifting devices of EN 1501-2:2005+A1:2009 (3.14 to 3.20 and 6.4), EN 1501-3:2008 (3.15 to 3.17, 4.4 and 6.5) and EN 14803:2006 (Figure A.1).

This document has been prepared under a mandate 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 minimum essential criteria are considered to be of primary importance in providing safe, serviceable, economical and practical lifting devices.

This European Standard is one part of the series of co-ordinated standards EN 1501 about "Refuse collection vehicles — General requirements and safety requirements" dealing with specification; design, safety and testing of refuse collection vehicles (RCVs) and their associated lifting devices comprising the following parts:

- *Part 1: Rear loaded refuse collection vehicles;*
- *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.*

The European Standards EN 1501-2:2005+A1:2009 and EN 1501-3:2008 will be revised after adoption of EN 1501-1 and this part of EN 1501.

For waste container lifting devices mounted on rear loaded RCVs, this Part 5 of the European Standard EN 1501 shall be enforced at the same time as Part 1 of this series.

In this document Annexes A and C are normative, Annexes B and ZA are informative.

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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

## Introduction

This European Standard is a type C standard as stated in EN ISO 12100.

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

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 requirements of the other standards, for machines that have been designed and built according to the requirements of this type C standard.

This European Standard should be read in conjunction with:

- the documents developed for refuse collection vehicles (EN 1501-1, EN 1501-2 and EN 1501-3) that are compatible with the waste container lifting devices specified in this standard;
- the documents developed for mobile waste containers (series of standards EN 840), for stationary waste containers (series of standards EN 12574) and for selective collection containers (series of standards EN 13071) that are compatible with the lifting devices specified in this European Standard;
- the documents developed for diamond and skip containers.

While producing this European Standard it was assumed that:

- only persons who have been appropriately trained will operate the lifting device;
- the guidelines issued by the chassis manufacturer have been taken into account;
- the guidelines issued by the RCV manufacturer have been taken into account;
- 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 with adequate strength and of suitable quality;
- harmful materials, such as asbestos, are not used as part of the lifting device;
- components are kept in good repair and working order, so that the required characteristics remain despite wear;
- this European Standard is designed for careful consideration by designers, manufacturers, suppliers and users of lifting devices and RCVs.