

# SVENSK STANDARD

## SS-EN 1756-1+A1:2008

Fastställt/Approved: 2008-03-14

Publicerad/Published: 2008-05-12

Utgåva/Edition: 1

Språk/Language: engelska/English

ICS: 53.020.99

---

### **Bakgavellyftar – Säkerhetskrav för bakgavellyftar för montering på hjulförsedda fordon – Del 1: Bakgavellyftar för gods**

### **Tail lifts – Platform lifts for mounting on wheeled vehicles – Safety requirements – Part 1: Tail lifts for goods**

This preview is downloaded from [www.sis.se](http://www.sis.se). Buy the entire standard via <https://www.sis.se/std-65557>

# Hitta rätt produkt och ett leveranssätt som passar dig

## Standarder

Genom att följa gällande standard både effektiviserar och säkrar du ditt arbete. Många standarder ingår dessutom ofta i paket.

## Tjänster

Abonnemang är tjänsten där vi uppdaterar dig med aktuella standarder när förändringar sker på dem du valt att abonnera på.

På så sätt är du säker på att du alltid arbetar efter rätt utgåva.

e-nav är vår online-tjänst som ger dig och dina kollegor tillgång till standarder ni valt att abonnera på dygnet runt. Med e-nav kan samma standard användas av flera personer samtidigt.

## Leveranssätt

Du väljer hur du vill ha dina standarder levererade. Vi kan erbjuda dig dem på papper och som pdf.

## Andra produkter

Vi har böcker som underlättar arbetet att följa en standard. Med våra böcker får du ökad förståelse för hur standarder ska följas och vilka fördelar den ger dig i ditt arbete. Vi tar fram många egna publikationer och fungerar även som återförsäljare. Det gör att du hos oss kan hitta över 500 unika titlar. Vi har även tekniska rapporter, specifikationer och "workshop agreement".

Matriser är en översikt på standarder och handböcker som bör läsas tillsammans. De finns på [sis.se](http://sis.se) och ger dig en bra bild över hur olika produkter hör ihop.

## Standardiseringsprojekt

Du kan påverka innehållet i framtida standarder genom att delta i någon av SIS ca 400 Tekniska Kommittéer.

# Find the right product and the type of delivery that suits you

## Standards

By complying with current standards, you can make your work more efficient and ensure reliability. Also, several of the standards are often supplied in packages.

## Services

Subscription is the service that keeps you up to date with current standards when changes occur in the ones you have chosen to subscribe to. This ensures that you are always working with the right edition.

e-nav is our online service that gives you and your colleagues access to the standards you subscribe to 24 hours a day. With e-nav, the same standards can be used by several people at once.

## Type of delivery

You choose how you want your standards delivered. We can supply them both on paper and as PDF files.

## Other products

We have books that facilitate standards compliance. They make it easier to understand how compliance works and how this benefits you in your operation. We produce many publications of our own, and also act as retailers. This means that we have more than 500 unique titles for you to choose from. We also have technical reports, specifications and workshop agreements.

Matrices, listed at [sis.se](http://sis.se), provide an overview of which publications belong together.

## Standardisation project

You can influence the content of future standards by taking part in one or other of SIS's 400 or so Technical Committees.

Europastandarden EN 1756-1:2001+A1:2008 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 1756-1:2001+A1:2008.

Denna standard ersätter SS-EN 1756-1, utgåva 1.

The European Standard EN 1756-1:2001+A1:2008 has the status of a Swedish Standard. This document contains the official English version of EN 1756-1:2001+A1:2008.

This standard supersedes the Swedish Standard SS-EN 1756-1, edition 1.

© Copyright/Upphovsrätten till denna produkt tillhör SIS, Swedish Standards Institute, Stockholm, Sverige. Användningen av denna produkt regleras av slutanvändarlicensen som återfinns i denna produkt, se standardens sista sidor.

© Copyright SIS, Swedish Standards Institute, Stockholm, Sweden. All rights reserved. The use of this product is governed by the end-user licence for this product. You will find the licence in the end of this document.

Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00.

Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna upplysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), tel +46 8 555 520 00.

Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

SIS Förlag AB, SE 118 80 Stockholm, Sweden. Tel: +46 8 555 523 10. Fax: +46 8 555 523 11.

E-mail: [sis.sales@sis.se](mailto:sis.sales@sis.se) Internet: [www.sis.se](http://www.sis.se)



EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 1756-1:2001+A1**

March 2008

ICS 53.020.99

Supersedes EN 1756-1:2001

English Version

## Tail lifts - Platform lifts for mounting on wheeled vehicles - Safety requirements - Part 1: Tail lifts for goods

Hayons élévateurs - Plateformes élévatrices à monter sur véhicules roulants - Prescriptions de sécurité - Partie 1: Hayons élévateurs pour marchandises

Hubladebühnen - Plattformlifte für die Anbringung and Radfahrzeugen - Sicherheitsanforderungen - Teil 1: Hubladebühnen für Güter

This European Standard was approved by CEN on 30 September 2001 and includes Amendment 1 approved by CEN on 5 January 2008.

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 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 Management Centre has the same status as the official versions.


CEN members are the national standards bodies of Austria, Belgium, Bulgaria, 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: rue de Stassart, 36 B-1050 Brussels**

## Contents

	page
Foreword.....	5
Introduction .....	7
1 Scope .....	7
2 Normative references .....	9
3 Terms and definitions .....	9
4 List of hazards.....	15
5 Safety requirements and/or protective measures .....	24
5.1 General requirements.....	24
5.2 Working area .....	24
5.3 Manual effort .....	25
5.4 Operating speeds.....	25
5.4.1 General.....	25
5.4.2 Vertical speed.....	25
5.4.3 Closing and opening speeds.....	25
5.4.4 Tilting speed.....	26
5.5 Load stability.....	26
5.5.1 Tilt angle .....	26
5.5.2 Stop devices.....	26
5.6 Limitations of travel.....	26
5.7 Layout of wires and pipes.....	26
5.8 Unauthorised operation .....	26
5.9 Isolation of energy sources .....	26
5.10 Tail lift stowage .....	27
5.10.1 Indication .....	27
5.10.2 Security .....	27
5.11 Crushing and shearing.....	27
5.12 Structure working coefficients .....	27
5.13 Platform .....	27
5.13.1 Surface.....	27
5.13.2  Bluntness of edges .....	28
5.13.3 Tail lift used as a link bridge.....	28
5.13.4 Visibility of platform .....	28
5.14 Drive systems.....	28
5.14.1 Unintentional movements.....	28
5.14.2 Mechanical suspension systems .....	29
5.14.3 Hydraulic systems .....	30
5.15 Safety devices .....	31
5.15.1 Safety mechanisms .....	31
5.15.2 Springs inside safety devices .....	31
5.16 Loading control.....	31
5.16.1 Prevention of lifting excessive loads.....	31
5.16.2 Excessive moment.....	31
5.17 Control devices .....	31
5.17.1 Hold-to run principle.....	31
5.17.2 Logic .....	31
5.17.3 Unintentional operation .....	31
5.17.4 One control device for several movements .....	32
5.17.5 Several control devices for one movement .....	32
5.18 Control positions .....	32

5.18.1	Multiple control positions .....	32
5.18.2	Location of control positions .....	32
6	Optional equipment .....	32
7	Verification of the safety requirements and/or measures .....	32
8	Information for use .....	36
8.1	General.....	36
8.2	Tail lift used as a link bridge .....	36
8.3	Inherent risks associated with improper use .....	36
8.4	Location and nature of information for use .....	36
8.4.1	Marking on the tail lift.....	36
8.4.2	Handbooks .....	37
8.4.3	Inspection record.....	39
Annex A	(informative) Tail lift mechanisms and types.....	41
A.1	Mechanisms .....	41
A.1.1	Parallelogram .....	41
A.1.2	Column.....	42
A.1.3	Telescopic .....	43
A.2	Types.....	43
A.2.1	Conventional : (full and part width) .....	43
A.2.2	Folding platform .....	44
A.2.3	Retractable .....	45
A.2.4	Rotary.....	46
A.2.5	Door mounted .....	47
A.2.6	Inset.....	48
A.2.7	Internally mounted.....	48
Annex B	(normative) Crushing and shearing.....	49
B.1	General.....	49
B.2	Platform lifting and lowering .....	49
B.2.1	Two-hand control.....	49
B.2.2	Two-foot control .....	50
B.2.3	Toe guard .....	50
B.2.4	Hinged foot protector .....	53
B.2.5	Safety cut-out.....	54
B.2.6	Automatic toe protector .....	55
B.3	Platforms capable of lifting above vehicle floor level.....	57
B.4	Platform closure .....	57
B.4.1	Two-hand control.....	57
B.4.2	Safety cut-out.....	57
Annex C	(informative) Structure and drive system .....	58
Annex D	(normative) Drive systems - Steel wire ropes and chains .....	60
D.1	Recommended specifications of steel wire ropes .....	60
D.2	Dimensions of pulley grooves .....	60
D.3	Flare angle .....	60
D.4	Fleet angles .....	61
D.5	Pitch circle.....	62
Annex E	(normative) Examples of controls logic .....	63
Annex F	(informative) Marking.....	65
Annex G	(informative) Unintentional operation .....	66
Annex H	(normative) Verification by the installer.....	67
H.1	Compatibility between the lift and the vehicle .....	67
H.2	Static test.....	67
H.2.1	Deformation.....	67
H.2.2	Drift.....	67
H.3	Dynamic test .....	67
H.4	Test of operation and safety function .....	67
H.5	Test to verify that the tail lift cannot lift excessive load.....	68

**SS-EN 1756-1+A1:2008 (E)**

<b>Annex I (informative) Overloads onto a platform at vehicle floor level .....</b>	<b>69</b>
<b>Annex ZA (informative)  Relationship between this European Standard and the Essential Requirements of EU Directive 98/37/EC .....</b>	<b>70</b>
<b>Annex ZB (informative)  Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC .....</b>	<b>71</b>
<b>Bibliography .....</b>	<b>72</b>



## Foreword

This document (EN 1756-1:2001+A1:2008) has been prepared by Technical Committee CEN/TC 98 "Lifting platforms", 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 2008 and conflicting national standards shall be withdrawn at the latest by September 2008.

This document includes Amendment 1, approved by CEN on 2008-01-05.

This document supersedes EN 1756-1:2001.

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 EC Directive(s).

For relationship with EC Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document.

This standard comprises two parts:

Part 1 relates specifically to tail lifts for goods (whether or not accompanied by an operator);

Part 2 covers the special requirements of tail lifts for passengers, including those with disabilities.

This part comprises ten annexes as follows:

- annex A (informative) - Tail lift mechanisms and types;
- annex B (normative) - Crushing and shearing;
- annex C (informative) - Structure and drive system;
- annex D (normative) - Drive systems - Steel wire ropes and chains;
- annex E (normative) - Examples for logicity;
- annex F (informative) - Marking;
- annex G (informative) - Unintentional operation;
- annex H (normative) - Verification by the installer;
- annex I (informative) - Overloads onto a platform at vehicle floor level;

**A1**

— Annex ZA (informative) - Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC;

— Annex ZB (informative) - Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC.

**A1**

## **SS-EN 1756-1+A1:2008 (E)**

This standard includes a Bibliography.

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, 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.

## Introduction

This European Standard is a type C standard, as stated in EN 1070.

The machinery concerned and the extent to which hazards are covered are indicated in the scope of this standard.

While producing this standard, it was assumed that :

- only trained persons operate the machine ;
- components without specific requirements are :
  - a) designed in accordance with the usual engineering practice and calculation codes, including all failure modes ;
  - b) of sound mechanical and electrical construction ;
  - c) made of materials, with adequate strength and of suitable quality ;
  - d) free of defects ;
- harmful materials, such as asbestos are not used ;
- components are kept in good repair and working order, so that the required dimensions remain fulfilled despite wear ;
- by design of the load bearing elements, a safe operation of the machine is assured for loading ranging from zero to 100 % of the rated possibilities and during the tests ;
- with the exception of the items listed below, a mechanical device built according to good practice and the requirements of the standard, will not deteriorate to a point of creating a hazard without the possibility of detection ;
- the equipment is capable of operating correctly within a temperature range of -15 °C to + 40 °C ;
- a negotiation takes place between the manufacturer of the tail lift and the installer for the characteristics of the supporting wheeled vehicle (see also clause 6 of the standard), the fitting of the tail lift on the vehicle and between the installer and the user relating to the specific conditions of the use, places of use of the machinery, also some of the characteristics of the vehicle, the appropriate language ;
- the working area is adequately lit (if lighting is not provided with the tail lift) ;
- if the place of installations allows a vertical falling height of persons of more than 3 meters notwithstanding the limited travel height indicated in the scope, means external to the machine are used to limit this falling height to 3 meters.

## 1 Scope

This European Standard specifies safety requirements for design of tail lifts as defined in 3.1 for mounting on wheeled goods vehicles. It also specifies the verification of such tail lifts and the safety information that shall be provided for their use.

This European Standard deals with the technical requirements to minimize the hazards listed in clause 4 which can arise during the operation of tail lifts when carried out in accordance with the specifications as intended by the manufacturer or his authorized representative.