

SVENSK STANDARD

SS-EN 16486:2014



Fastställt/Approved: 2014-07-31
Publicerad/Published: 2014-08-19
Utgåva/Edition: 1
Språk/Language: engelska/English
ICS: 13.030.40; 14.330; 43.160

Maskiner för kompaktering av avfall eller återvinningsfraktioner – Kompaktorer – Säkerhetskrav

Machines for compacting waste materials or recyclable fractions – Compactors – Safety requirements

This preview is downloaded from www.sis.se. Buy the entire standard via <https://www.sis.se/std-102518>

Standarder får världen att fungera

SIS (Swedish Standards Institute) är en fristående ideell förening med medlemmar från både privat och offentlig sektor. Vi är en del av det europeiska och globala nätverk som utarbetar internationella standarder. Standarder är dokumenterad kunskap utvecklad av framstående aktörer inom industri, näringsliv och samhälle och befrämjar handel över gränser, bidrar till att processer och produkter blir säkrare samt effektiviserar din verksamhet.

Delta och påverka

Som medlem i SIS har du möjlighet att påverka framtida standarder inom ditt område på nationell, europeisk och global nivå. Du får samtidigt tillgång till tidig information om utvecklingen inom din bransch.

Ta del av det färdiga arbetet

Vi erbjuder våra kunder allt som rör standarder och deras tillämpning. Hos oss kan du köpa alla publikationer du behöver – allt från enskilda standarder, tekniska rapporter och standardpaket till handböcker och onlinetjänster. Genom vår webbtjänst e-nav får du tillgång till ett lättnavigerat bibliotek där alla standarder som är aktuella för ditt företag finns tillgängliga. Standarder och handböcker är källor till kunskap. Vi säljer dem.

Utveckla din kompetens och lyckas bättre i ditt arbete

Hos SIS kan du gå öppna eller företagsinterna utbildningar kring innehåll och tillämpning av standarder. Genom vår närhet till den internationella utvecklingen och ISO får du rätt kunskap i rätt tid, direkt från källan. Med vår kunskap om standarders möjligheter hjälper vi våra kunder att skapa verklig nytta och lönsamhet i sina verksamheter.

Vill du veta mer om SIS eller hur standarder kan effektivisera din verksamhet är du välkommen in på www.sis.se eller ta kontakt med oss på tel 08-555 523 00.



Standards make the world go round

SIS (Swedish Standards Institute) is an independent non-profit organisation with members from both the private and public sectors. We are part of the European and global network that draws up international standards. Standards consist of documented knowledge developed by prominent actors within the industry, business world and society. They promote cross-border trade, they help to make processes and products safer and they streamline your organisation.

Take part and have influence

As a member of SIS you will have the possibility to participate in standardization activities on national, European and global level. The membership in SIS will give you the opportunity to influence future standards and gain access to early stage information about developments within your field.

Get to know the finished work

We offer our customers everything in connection with standards and their application. You can purchase all the publications you need from us - everything from individual standards, technical reports and standard packages through to manuals and online services. Our web service e-nav gives you access to an easy-to-navigate library where all standards that are relevant to your company are available. Standards and manuals are sources of knowledge. We sell them.

Increase understanding and improve perception

With SIS you can undergo either shared or in-house training in the content and application of standards. Thanks to our proximity to international development and ISO you receive the right knowledge at the right time, direct from the source. With our knowledge about the potential of standards, we assist our customers in creating tangible benefit and profitability in their organisations.

If you want to know more about SIS, or how standards can streamline your organisation, please visit www.sis.se or contact us on phone +46 (0)8-555 523 00



Europastandarden EN 16486:2014 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 16486:2014.

The European Standard EN 16486:2014 has the status of a Swedish Standard. This document contains the official version of EN 16486:2014.

© 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.

Uppllysningar 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 uppllysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

Denna standard är framtagen av kommittén för Utrustning för avfallshantering, SIS/TK 252.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

EUROPEAN STANDARD

EN 16486

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2014

ICS 43.160

English Version

Machines for compacting waste materials or recyclable fractions - Compactors - Safety requirements

Machines de compactage pour déchets ou matières
recyclables - Compacteurs - Prescriptions de sécurité

Maschinen zum Verdichten von Abfällen oder recyclebaren
Materialien - Verdichter - Sicherheitsanforderungen

This European Standard was approved by CEN on 28 May 2014.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, 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: Avenue Marnix 17, B-1000 Brussels

Contents		Page
Foreword.....		4
Introduction		5
1 Scope		6
2 Normative references		7
3 Terms and definitions		9
4 List of significant hazards		13
5 Safety requirements and/or protective measures		16
5.1 Mechanical hazards		16
5.1.1 General.....		16
5.1.2 Feed equipment area		18
5.1.3 Feed hopper/opening area and compaction chamber		19
5.1.4 Area behind the compacting parts.....		22
5.1.5 Container closing devices		22
5.1.6 Interface between compaction unit and container on static compactors		23
5.1.7 Emptying process of transportable compactors.....		23
5.1.8 Handling of transportable compactors		23
5.1.9 Traversing systems		24
5.2 Hazards due to failures in the control system or unexpected start-up.....		27
5.2.1 Control devices, actuators and systems.....		27
5.2.2 Prevention of unauthorised operation.....		27
5.2.3 Emergency stop.....		27
5.2.4 Required performance levels PL _r		27
5.3 Electrical hazards		28
5.4 Hazards from hydraulic equipment.....		28
5.5 Slips, trips and falls		29
5.6 Hazards generated by noise		29
5.6.1 Noise reduction at source by design.....		29
5.6.2 Noise reduction by protective measures		29
5.6.3 Information connected with noise hazards.....		29
5.7 Hazards due to neglecting ergonomic principles in the design of the machine		29
6 Verification of the safety requirements and/ or protective measures.....		29
7 Information for use		32
7.1 General Information.....		32
7.2 Information for safe operation.....		32
7.2.1 General.....		32
7.2.2 Instructions for operation		33
7.2.3 Information on noise		33
7.2.4 Installation instructions		34
7.2.5 Setting and maintenance instructions		34
7.2.6 Spare parts list.....		35
7.2.7 Preventing faults and fault recovery.....		35
7.2.8 Information for preventing and removing blockages		35
7.2.9 Information relating to connections between the compactor, container and any traversing systems.....		35
7.2.10 Transportable compactors		35
7.2.11 Information on examinations and/or inspections		36
7.3 Marking		37

7.3.1	Manufacturer's plate	37
7.3.2	Safety signs	37
	Annex A (normative) Noise test code	39
A.1	Scope	39
A.2	Determination of emission sound pressure level at the work station(s)	39
A.2.1	Basic standards	39
A.2.2	Measurement uncertainty	40
A.3	Determination of sound power levels	40
A.3.1	Basic standards	40
A.3.2	Measurement uncertainty	40
A.4	Installation and mounting conditions for the noise measurement	41
A.5	Operating conditions	41
A.6	Information to be recorded and reported	41
A.6.1	General	41
A.6.2	Compactor data	41
A.6.3	Standards used	41
A.6.4	Noise data	41
A.6.5	Installation and operating conditions	41
A.7	Declaration and verification of noise emission values	41
	Annex B (informative) Preliminary dialogue between manufacturer and user	43
	Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC	44
	Bibliography	45

Foreword

This document (EN 16486:2014) has been prepared by Technical Committee CEN/TC 397 "Project Committee - Baling presses - Safety requirements", 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 January 2015 and conflicting national standards shall be withdrawn at the latest by January 2015.

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 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.

For relationship with EU Directive, 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

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

The machinery concerned and the extent to which hazards, hazardous situations and 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 in accordance with the provisions of this type C standard.

1 Scope

This European Standard specifies the safety requirements for the design, manufacture and information for the safe use of compactors that compact waste material or recyclable fractions (e. g. paper, plastics, textiles, cans, cardboard, mixed waste), hereafter referred to as materials.

This European Standard applies to:

- compactors using a horizontally moving screw, pendulum or plate as compacting part and where the materials move horizontally; and
- compactors that are mechanically fed and/or fed by hand.

These compactors can be:

- static compactors;
- transportable compactors;
- traversing systems.

The scope includes:

- any integral mechanical feed equipment (e.g. bin lift);
- feed hoppers/openings;
- any integral pre-conditioning equipment in the hopper (e.g. perforators, pre-crushing devices and shredders);
- any integral material flow control equipment;
- the interface between the compactor and any feed equipment (except those excluded from the scope).

The scope of this European Standard does not cover:

- compactors that are covered by EN 1501 (all parts);
- underground compactors, however if these compactors can be used above ground this standard applies;
- compactors using thermal technologies for compaction;
- vacuum compactors;
- compactors where materials are compacted vertically;
- containers for static compactors, however the interface between the compaction unit and the container is included;
- bins in which materials are collected for feeding into the compactor;
- any up-stream pre-treatment equipment that is not integral to the machine and is used to treat the materials before they are fed into the feed opening of the compactor;
- vehicles including lifting equipment used to collect and transport the compactor or container;

- cranes, lift trucks or other transportable plant used to load materials into the feed hopper/opening and the hazards arising out of using this equipment to load;
- any suction or dust control equipment.

This European standard does not cover the lifting and transport of transportable compactors.

This European Standard does not apply to hazards arising from the materials being processed (e.g. asbestos, clinical waste, aerosol containers).

All hazards mentioned in Clause 4 are dealt with in this European Standard.

This European Standard is not applicable for compactors which are manufactured before the date of its publication as an EN.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 349:1993+A1:2008, *Safety of machinery - Minimum gaps to avoid crushing of parts of the human body*

EN 574:1996+A1:2008, *Safety of machinery - Two-hand control devices - Functional aspects - Principles for design*

EN 620:2002+A1:2010, *Continuous handling equipment and systems - Safety and EMC requirements for fixed belt conveyors for bulk materials*

EN 953:1997+A1:2009, *Safety of machinery - Guards - General requirements for the design and construction of fixed and movable guards*

EN 1837:1999+A1:2009, *Safety of machinery - Integral lighting of machines*

EN 60204-1:2006, *Safety of machinery - Electrical equipment of machines - Part 1: General requirements*

EN 60529:1991, *Degrees of protection provided by enclosures (IP Code)*

EN 61496-1:2004, *Safety of machinery - Electro-sensitive protective equipment - Part 1: General requirements and tests*

CLC/TS 61496-2:2006, *Safety of machinery – Electro-sensitive protective equipment – Part 2: Particular requirements for active opto-electronic protective devices (AOPDs) (IEC 61496-2:2006)*

CLC/TS 61496-3:2008, *Safety of machinery – Electro-sensitive protective equipment – Part 3: Particular requirements for active opto-electronic protective devices responsive to diffuse reflection (AOPDDR) (IEC 61496-3:2008)*

EN 62262:2002, *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code) (IEC 62262:2002)*

EN ISO 3744:2010, *Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Engineering methods for an essentially free field over a reflecting plane (ISO 3744:2010)*