SLOVENSKI STANDARD
SIST EN 16486:2014

01-oktober-2014

Stroji za stiskanje odpadkov ali reciklirnih materialov - Kompaktorji (zgoščevalniki) - Varnostne zahteve

Machines for compacting waste materials or recycable fractions - Compactors - Safety Requirements

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

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

Ta slovenski standard je istoveten z: **EN 16486:2014**

ICS:

13.030.40	Naprave in oprema za odstranjevanje in obdelavo odpadkov	Installations and equipment for waste disposal and treatment

SIST EN 16486:2014 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 16486

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

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

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Contents

Page

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of an identical text or by endorsement, at the latest by January 2015 and conflicting national standards shall be withdrawn at the latest by January 2015.

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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)*

EN ISO 3746:2010, *Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Survey method using an enveloping measurement surface over a reflecting plane (ISO 3746:2010)*

EN ISO 3747:2010, *Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Engineering/survey methods for use in situ in a reverberant environment (ISO 3747:2010)*

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

EN ISO 4871:2009, *Acoustics - Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)*

EN ISO 9614-2:1996, *Acoustics - Determination of sound power levels of noise sources using sound intensity - Part 2: Measurement by scanning (ISO 9614-2:1996)*

EN ISO 11200:2014, *Acoustics - Noise emitted by machinery and equipment - Guidelines for the use of basic standards for the determination of emission sound pressure levels at a work station and at other specified positions (ISO 11200:2014)*

EN ISO 11201:2010, *Acoustics - Noise emitted by machinery and equipment - Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections (ISO 11201:2010)*

EN ISO 11202:2010, *Acoustics - Noise emitted by machinery and equipment - Determination of emission sound pressure levels at a work station and at other specified positions applying approximate environmental corrections (ISO 11202:2010)*

EN ISO 11204:2010, *Acoustics - Noise emitted by machinery and equipment - Determination of emission sound pressure levels at a work station and at other specified positions applying accurate environmental corrections (ISO 11204:2010)*

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

EN ISO 13849-1:2008, *Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design (ISO 13849-1:2006)*

EN ISO 13850:2008, *Safety of machinery - Emergency stop - Principles for design (ISO 13850:2006)*

EN ISO 13855:2010, *Safety of machinery - Positioning of safeguards with respect to the approach speeds of parts of the human body (ISO 13855:2010)*

EN ISO 13856-1:2013, *Safety of machinery - Pressure-sensitive protective devices - Part 1: General principles for design and testing of pressure-sensitive mats and pressure-sensitive floors (ISO 13856-1:2013)*

EN ISO 13856-2:2013, *Safety of machinery - Pressure-sensitive protective devices - Part 2: General principles for design and testing of pressure-sensitive edges and pressure-sensitive bars (ISO 13856-2:2013)*

EN ISO 13857:2008, *Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2008)*

EN ISO 14119:2013, *Safety of machinery - Interlocking devices associated with guards - Principles for design and selection (ISO 14119:2013)*

EN ISO 14122-1:2001, *Safety of machinery - Permanent means of access to machinery - Part 1: Choice of fixed means of access between two levels (ISO 14122-1:2001)*

EN ISO 14122-2:2001, *Safety of machinery - Permanent means of access to machinery - Part 2: Working platforms and walkways (ISO 14122-2:2001)*

EN ISO 14122-3:2001, *Safety of machinery - Permanent means of access to machinery - Part 3: Stairs, stepladders and guard-rails (ISO 14122-3:2001)*

EN ISO 14122-4:2004, *Safety of machinery - Permanent means of access to machinery - Part 4: Fixed ladders (ISO 14122-4:2004)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010 and the following apply.

3.1
compactor
machine, consisting of a compaction unit and container that compacts loose materials into a container (materials can include, but are not limited to, paper, plastics, textiles, cans, cardboard and mixed waste)

Note 1 to entry: A compactor can consist of e. g. a control system and control station, mechanical feed equipment such as a bin lift, feed hopper, compaction chamber, compacting equipment, container and any associated container closing device. Compactors can be manually or mechanically fed.

Note 2 to entry: Compactors can be:

— static, i. e. the compaction unit is fixed at one location and the container is transportable;

— transportable and used at different locations, i. e. it is transported to and from different locations by e.g. road vehicles;

— part of a traversing system.

3.1.1
static compactor
compactor on which the compaction unit is fixed and the container is not integral with the compactor

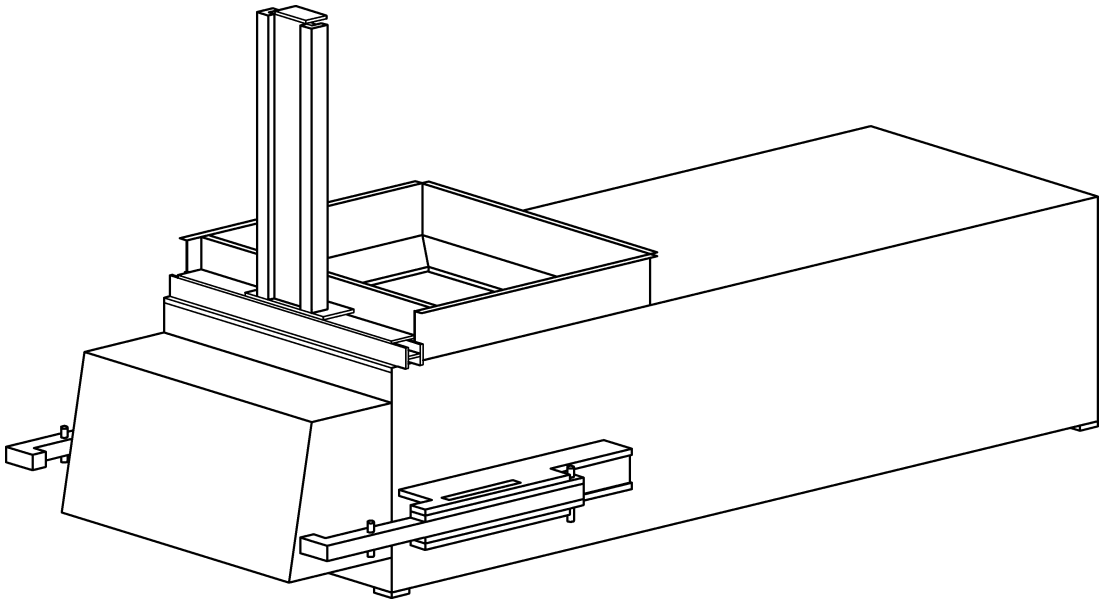

Figure 1 — Example of a static compactor

3.1.2
transportable compactor
self-contained compaction unit and container, which can be transported as a complete unit

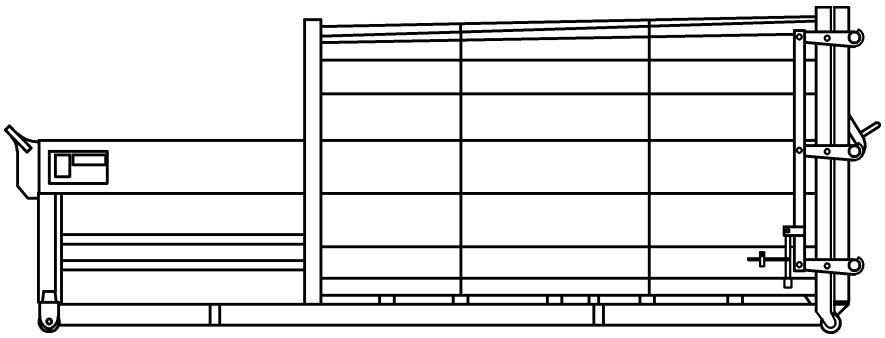

Figure 2 — Example of a transportable compactor

3.2
container
the material-receiving container into which the loose material is compacted by the compaction unit

Note 1 to entry: On a transportable compactor the container is an integral part of the compactor.

Note 2 to entry: On a static compactor the container is not an integral part of the compactor, however the interface between the compaction unit and the container is covered in this standard, see Scope.

3.3
coupling device
mechanism for clamping the container to the main body of the compaction unit and holding it in position

3.4
traversing system
installation composed of:

— either several containers that are placed on a carrier system that traverses (e.g. on rails) in front of a static compactor;

— or several containers that are placed in front of a traversing compactor (e.g. on rails)

Note 1 to entry: Where the containers traverse only the compactor, the carrier system and the interface between the compactor and containers are covered by this standard

3.5
integral pre-conditioning equipment
equipment that is mounted/fixed to the compactor and is used to treat the material being fed into the compactor to help compaction, e.g. perforators, rufflers, pre-crushers and shredders

Note 1 to entry: These devices can be fixed, or inserted into and retracted from, the feed hopper.

3.6
integral material flow control equipment
equipment that is mounted/fixed to the compactor and helps material in the feed opening flow into the compaction chamber and/or prevent blockages or bridging, e.g. forced feeding device for screw compactors

3.7
feed equipment
equipment used for feeding materials to be compacted into the compaction chamber

3.8
integral feed equipment
mechanical feed equipment i.e. conveyor or bin lift that is:

— mounted/fixed to the compactor;

— the power supply and control system of which are linked into the compactors systems

3.9
bin lift
mechanical feed equipment for lifting a bin containing materials and tipping the contents into the compaction chamber of the compactor

3.10
bin
container, usually fitted with wheels, in which material are collected ready for feeding into the compaction chamber of the compactor

3.11
feed hopper
chute through which materials being fed to the compactor are guided into the compaction chamber

3.12
feed opening
opening through which materials are fed into the compaction chamber

3.13
manual feeding
loading materials directly into the feed hopper/opening by hand

3.14
mechanical feeding
loading materials into the feed hopper/opening by mechanical means, e.g. conveyors, bin lifts

3.15
compaction chamber
chamber into which material is fed and in which one or more compacting parts move to press and compact the material into the receiving container

3.16
compacting part
device for the compacting process/movement; the device can be a plate, a screw or a pendulum

3.17
compacting equipment
all components directly involved in pressing the loose materials into the container and compacting them inside the container (e.g. hydraulic system, compacting parts, compaction chamber)

3.18
compaction unit
the part of the compactor containing the compacting equipment

3.19
cycle of the compacting part
complete forward and reverse movement of the compacting part or a complete 360° rotation