

**Jäätmematerjalide või taaskasutatavate osiste
tihendamise masinad. Tihendajad. Ohutusnõuded**

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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ICS 43.160

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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.

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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)*

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

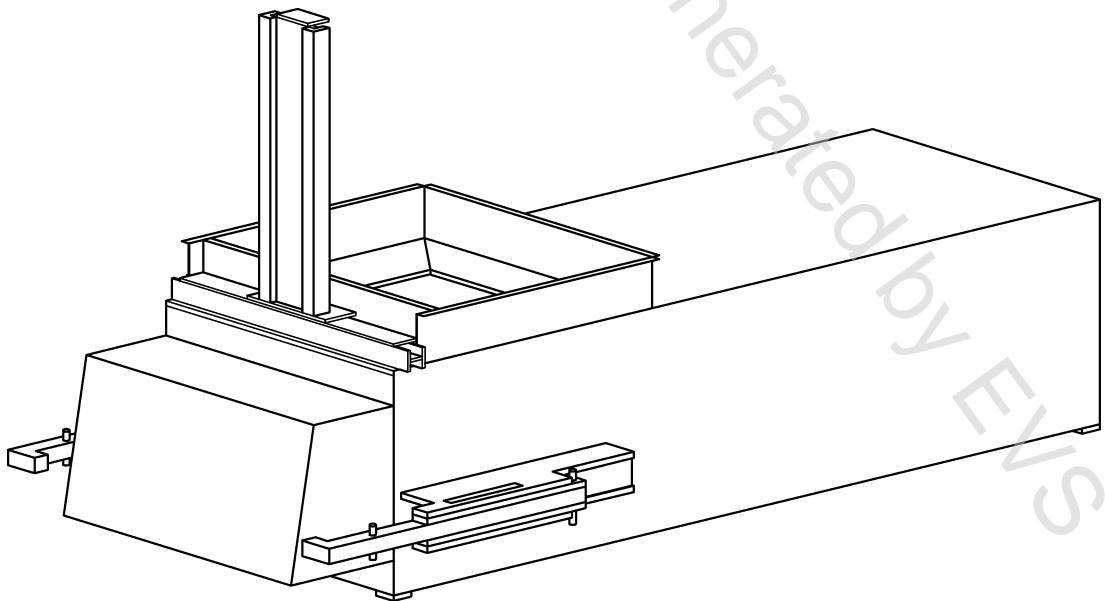


Figure 1 — Example of a static compactor