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SEGAMISMASINAD. OHUTUSNÕUDED**

**Road construction machines - Mixing plants for road  
construction materials - Safety requirements**

**EESTI STANDARDI EESSÕNA****NATIONAL FOREWORD**

See Eesti standard EVS-EN 536:2015 sisaldab Euroopa standardi EN 536:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 536:2015 consists of the English text of the European standard EN 536:2015.
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English Version

## Road construction machines - Mixing plants for road construction materials - Safety requirements

Machines pour la construction des routes - Centrales d'enrobage pour matériaux routiers - Prescriptions de sécurité

Straßenbaumaschinen - Mischanlagen für Materialien zum Straßenbau - Sicherheitsanforderungen

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## European foreword

This document (EN 536:2015) has been prepared by Technical Committee CEN/TC 151 "Construction equipment and building material machines - Safety", 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of an identical text or by endorsement, at the latest by February 2016, and conflicting national standards shall be withdrawn at the latest by February 2016.

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 supersedes EN 536:1999.

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.

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.

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

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## 1 Scope

This European Standard specifies the safety requirements applicable to stationary and relocatable mixing plants for the production of materials (e.g. hot-mix asphalt, cold-mix asphalt, cement gravel) used for the construction and maintenance of traffic routes (roads, highways, sidewalks, airfields, etc.) water retaining works, dam walls, culverts, etc.

This European Standard applies to the following types of mixing plant:

- a) hot asphalt mixing plant;
- b) cold mixing plant (e.g. for production of cement gravel, cold mix asphalt);
- c) mixing plant for bituminous or non-bituminous reclaimed materials;
- d) mixing plant for mastic asphalt, also including natural asphalt.

Machines moving during the working process (e.g. mobile mastic asphalt mixers) and crushers are not covered by this European Standard.

Those types of asphalt mixing plants can also be combined or enlarged by additional installations (e.g. Plant for storage of binders (e.g. bituminous, synthetic, vegetal).

This European Standard deals with all significant hazards pertinent to mixing plants, when they are used as intended and under the conditions of misuse which are reasonably foreseen by the manufacturer (see Clause 4). This European Standard specifies the appropriate technical measures to eliminate or reduce risks arising from the significant hazards.

This European Standard does not apply to machines for the production of cement concrete and mortar as covered in EN 12151.

This European Standard does not deal with hazards caused by flammable gases. As soon as information is available it will be included.

This European Standard is not applicable to mixing plants for road construction materials, which are manufactured before the date of publication of this European Standard by CEN.

## 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 547-1:1996+A1:2008, *Safety of machinery — Human body measurements — Part 1: Principles for determining the dimensions required for openings for whole body access into machinery*

EN 547-2:1996+A1:2008, *Safety of machinery — Human body measurements — Part 2: Principles for determining the dimensions required for access openings*

EN 618:2002+A1:2010, *Continuous handling equipment and systems — Safety and EMC requirements for equipment for mechanical handling of bulk materials except fixed belt conveyors*

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

EN 746-1:1997+A1:2009, *Industrial thermoprocessing equipment — Part 1: Common safety requirements for industrial thermoprocessing equipment*

EN 795:2012, *Personal fall protection equipment — Anchor devices*

EN 842:1996+A1:2008, *Safety of machinery — Visual danger signals — General requirements, design and testing*

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

EN 1037:1995+A1:2008, *Safety of machinery — Prevention of unexpected start-up*

EN 12600:2002, *Glass in building — Pendulum test — Impact test method and classification for flat glass*

EN 13482:2013, *Rubber hoses and hose assemblies for asphalt and bitumen — Specification*

EN 60204-1:2006, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 6204-1:2005, modified)*

EN 60529:1991, *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*

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

EN ISO 4414:2010, *Pneumatic fluid power — General rules and safety requirements for systems and their components (ISO 4414:2010)*

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

EN ISO 7010:2012, *Graphical symbols — Safety colours and safety signs — Registered safety signs (ISO 7010:2011)*

EN ISO 7731:2008, *Ergonomics — Danger signals for public and work areas — Auditory danger signals (ISO 7731:2003)*

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 11688-1:2009, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning (ISO/TR 11688-1:1995)*

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

EN ISO 13732-1:2008, *Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces — Part 1: Hot surfaces (ISO 13732-1:2006)*

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 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)*

ISO 3864-1:2011, *Graphical symbols — Safety colours and safety signs — Part 1: Design principles for safety signs and safety markings*

ISO 3864-2:2004, *Graphical symbols — Safety colours and safety signs — Part 2: Design principles for product safety labels*

ISO 3864-3:2012, *Graphical symbols — Safety colours and safety signs — Part 3: Design principles for graphical symbols for use in safety signs*

ISO 6405-1:2004, *Earth-moving machinery — Symbols for operator controls and other displays — Part 1: Common symbols*

### 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

##### **mixing plant**

complex installation of machines and functionally connected, performing a combination of the following functions (depending on the type of the plant) for example:

- storage and charging of aggregates and reclaimed materials;
- dosing of aggregates and reclaimed materials;
- scalping of cold aggregates and reclaimed materials;
- drying and heating of aggregates and if applicable reclaimed materials;
- screening;
- removal of dust from the gases emitted from the dryer;
- reintroduction of reclaimed fines;
- storage and dosing of imported fines;
- introduction of imported fines;
- storage and dosing of hot hydrocarbon binders;