



**SLOVENSKI STANDARD**  
**SIST EN 13019:2002+A1:2009**  
**01-februar-2009**

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Glavni namen: Varnostne zahteve za stroje za čiščenje površine cest

Machines for road surface cleaning - Safety requirements

Maschinen zur Straßenreinigung - Sicherheitsanforderungen

Machines de nettoyage des chaussées - Exigences de sécurité

Ta slovenski standard je istoveten z: **EN 13019:2001+A1:2008**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 13019:2001+A1**

December 2008

ICS 43.160

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English Version

## Machines for road surface cleaning - Safety requirements

Machines de nettoyage des chaussées - Exigences de  
sécurité

Maschinen zur Straßenreinigung -  
Sicherheitsanforderungen

This European Standard was approved by CEN on 1 January 2001 and includes Amendment 1 approved by CEN on 9 November 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.

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**EN 13019:2001+A1:2008 (E)****Foreword**

This document (EN 13019:2001+A1:2008) 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of an identical text or by endorsement, at the latest by June 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

This document includes Amendment 1, approved by CEN on 2008-11-09.

This document supersedes EN 13019:2001.

The start and finish of text introduced or altered by amendment is indicated in the text by tags  $\boxed{A1}$   $\boxed{A1}$ .

This European Standard 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).

$\boxed{A1}$  For relationship with EU Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document.  $\boxed{A1}$

Annex A is informative and contains "Terminology";

Annex B is informative and contains "Hopper safety device".

This standard contains a "Bibliography" as well. <https://standards.iteh.ai/catalog/standards/sist/f94fc665-2a9b-4895-83cd-0ac90d361754/sist-en-13019-2002-a1-2009>

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  $\text{A1}$  EN ISO 12100  $\text{A1}$ .

$\text{A1}$  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 according to the provisions of this type C standard.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this European Standard.  $\text{A1}$

## 1 Scope

This European Standard applies to road surface cleaning machines, which are defined in clause 3. The equipment would normally be mounted on a carrier vehicle (e.g. truck, tractor, construction machinery and mobile industrial handling equipment). It is also possible to mount a road surface cleaning machine on its own chassis construction and propulsion system. In all cases the machine and chassis form an integral unit. Directives and standards for the vehicular truck chassis aspect, termed 'carrier vehicle' in this standard, would be those relative to that equipment, even where specific modifications have been made to realize the road surface cleaning application. The use in public road traffic is governed by the national regulations.

This European Standard deals with all significant hazards identified through a risk assessment pertinent to road surface cleaning machines when they are used as intended and under the conditions foreseen by the manufacturer. This European Standard does not deal with significant hazards associated with  $\text{A1}$  *deleted text*  $\text{A1}$  EMC. This European Standard only specifies the appropriate technical measures to eliminate or reduce risks arising from the significant hazards associated with machine operation, setting and adjustments, load discharge and routine maintenance.

This European Standard does not include requirements for the carrier vehicles (e.g. truck) or special constructions. These are covered in directives related to the construction of vehicles. Demountable bodywork systems (e.g. demountable containers) are specified in other standards.

This European Standard does not apply to road surface cleaning machines such as front mounted tractor brooms according to  $\text{A1}$  EN 13524:2003.  $\text{A1}$

This European Standard does not apply to machines or components that are specifically designed for cleaning tram-lines and rail tracks.

This European Standard does not deal with the risks associated with the operation of machines in potentially explosive atmospheres.

This European Standard applies to machines which are manufactured after the date of approval of the standard by CEN.

**EN 13019:2001+A1:2008 (E)****2 Normative references**

**[A1]** The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies. **[A1]**

**[A1]** *deleted text* **[A1]**

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

**[A1]** EN 982:1996 **[A1]**, *Safety of machinery — Safety requirements for fluid power systems and components — Hydraulics*

**[A1]** EN 983:1996 **[A1]**, *Safety of machinery — Safety requirements for fluid power systems and components — Pneumatics*

**[A1]** *deleted text* **[A1]**

**[A1]** EN ISO 2867:2006 **[A1]**, *Earth-moving machinery — Access systems* **[A1]** (ISO 2867:2006) **[A1]**

**[A1]** EN ISO 12100-1:2003, *Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology (ISO 12100-1:2003)* **[A1]**

**[A1]** EN ISO 12100-2:2003, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles (ISO 12100-2:2003)* **[A1]**

**[A1]** 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)* **[A1]**

**[A1]** ISO 6750:2005 **[A1]**, *Earth-moving machinery — Operation and maintenance — Format and content of manuals*

**3 Terms and definitions**

**[A1]** For the purposes of this document, the terms and definitions given in EN ISO 12100-1:2003 and the following apply. **[A1]**

**3.1**  
**road surface cleaning machines**  
machines for removal of spoil on traffic areas, where the machines are permanently fixed or demountable from a carrier vehicle or specially designed chassis (see annex A).

Road surface cleaning machines are equipped with sweep gear to scarify debris. The sweepings maybe collected by the machine and conveyed into a hopper

**3.2**  
**demountable machine**  
machine, that may be demounted from and remounted to the carrier vehicle

**3.3**  
**hopper**  
container for the collected sweepings or spoil



**3.4****sweep gear**

collective name for all components that perform the cleaning function such as brushes, brooms, pneumatic and/or mechanical conveyance equipment, flushing and high pressure washer equipment

**3.5****pick-up system**

means for conveying the sweepings into the hopper

**3.6****traffic area**

paved areas on which there is vehicular and/or pedestrian traffic. Not included are rail tracks which are solely for rail-mounted traffic, as well as traffic areas inside buildings and underground

**4 List of significant hazards**

This clause contains all hazards and hazardous situations, as far as they are dealt with in this European Standard, identified by risk assessments significant to this type of machinery that require action to eliminate or reduce risk.

Hazards		Typical location of hazard	Relative Subclauses
1	Mechanical hazards (caused for example by: <ul style="list-style-type: none"> <li>- shape;</li> <li>- relative location;</li> <li>- mass and stability;</li> <li>- mass and velocity;</li> <li>- inadequacy of mechanical strength</li> <li>- accumulation of potential energy</li> </ul> by: <ul style="list-style-type: none"> <li>- elastic elements (springs), or</li> <li>- liquids or gases under pressure or</li> <li>- vacuum</li> </ul> of the machine or parts or workpieces).		
1.1	Crushing hazard	Under elevating hopper Under hopper door	5.1.2 5.1.3 5.5.5
1.2	Shearing hazard	Sweep gear mechanisms	5.2.2
1.3	Entanglement	Rotating machinery Sweeping brushes	5.5.1 5.2.1
1.4	Drawing-in or trapping hazard	Rotating brushes	5.2.1
1.5	Impact hazard	Protruding parts	5.5.5
1.6	Friction or abrasion hazards	Sweeping brushes and brooms	5.2.1
1.7	High pressure fluid injection hazard	Hydraulic pipes/hoses High pressure washing system	5.1.6 5.5.4 5.6.2
1.8	Ejection of parts (of machinery and processed material/workpieces)	Fan systems High pressure jets	5.5.1 b) 5.6.2
1.9	Slip, trip and fall hazards in relationship with machinery (because of their mechanical nature)	Access, on or from walkways From climbing on equipment or from access ladders	5.3
2	Thermal hazards resulting in:		

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Hazards		Typical location of hazard	Relative Subclauses
2.1	Burns and scalds, by a possible contact of persons, by flames or explosions and also by the radiation of heat sources	Engine cooling systems Engine exhaust systems	5.5.2 5.5.3
3	Hazards generated by materials and substances processed, used or exhausted by machinery for example:		
3.1	Hazards resulting from contact with or inhalation of harmful fluids, gases, mists, fumes and dusts	Fumes in cab Dust from brushes and brooms	5.5.3
4	Hazards generated by neglecting ergonomic principles in machine design (mismatch of machinery with human characteristics and abilities) caused for example by:		
4.1	Unhealthy postures or excessive efforts	Seats and control devices Manipulating heavy doors and access panels Hand held cleaning devices	5.1.4 5.5.5  5.8 5.9.1
4.2	Inadequate local lighting	Within cleaning zones	5.2.3
4.3	Human errors	Lifting of the hopper during carrier vehicle movement	5.1.5
5	Hazards caused by failure of energy supply, breaking down of machinery parts and other functional disorders, for example:		
5.1	Failure of energy supply (of drive and/or control circuits)	Elevating hopper Demountable machine systems Sweep gear stowage Hopper discharge door	5.1.3 5.9.1 5.2.2 5.2.2 5.1.3
5.2	Unexpected ejection of machine parts or fluids	Pipes and hoses Outlet of centrifugal fan Brushes and brooms	5.1.6 5.5.1 b) 5.2.1
5.3	Errors of fitting	Safety props Load descent control systems Demountable components Disconnectable systems Hydraulic pipes/hoses	5.1.2 5.2.2 5.9.1 5.9.3 6.1
5.4	Overturn, unexpected loss of machine stability	Elevating hopper Demountable components in general	5.1.5 5.9.1
6	Hazards caused by (temporary) missing and/or incorrectly positioned safety related measures/means, for example:		
6.1	All kinds of guard	Rotating machinery Hot surfaces Fixed guards	5.5.1 5.5.2 5.2.1

Hazards		Typical location of hazard	Relative Subclauses
6.2	Safety signs and signals	Rotating machinery Rotating brushes and brooms Elevating hopper  Support legs Disconnectable systems	5.2.1 5.1.1 5.9.2  5.9.1 5.9.3
6.3	Essential equipment and accessories for safe adjusting and/or maintaining		6
<b>A1</b> 7	Hazards generated by noise, resulting in:		
7.1	Hearing loss (deafness), other physiological disorders (e.g. loss of balance, loss of awareness)		5.10
7.2	Interference with speech communication, acoustic signals, etc.		5.10
8	Hazards generated by vibration		
8.1	Whole-body vibration, particularly when combined with poor postures		5.11 <b>A1</b>

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### 5 Safety requirements and/or measures (standards.iteh.ai)

The machines shall comply with the safety requirements and/or measures of this clause. In addition the machines shall be designed to comply with the terms of **A1** EN ISO 12100 **A1** for hazards that are relevant but not significant and therefore are not dealt with in this standard.

For the application of the reference standards **A1** EN ISO 13732-1 **A1**, EN 953, EN 982 and EN 983 which are used in this standard, the manufacturer shall carry out an adequate risk assessment relating to those requirements for which a special safety measure or category is necessary.

NOTE This specific risk assessment should be part of the general risk assessment relating to the hazards not covered by this standard.

#### 5.1 Elevating hoppers and powered discharge doors

##### 5.1.1 Multiple control systems

Multiple control systems shall be designed so that, only one set of controls can be activated for each function respectively.

##### 5.1.2 Elevating hopper

**A1**

- a) Elevating equipment shall be constructed or designed so that any unintentional lowering of the hopper, including lowering resulting from power interruption, shall be prevented. **A1**