



**SLOVENSKI STANDARD**  
**SIST EN 500-1:2007/kFprA1:2009**  
**01-julij-2009**

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Mobile road construction machinery - Safety - Part 1: Common requirements

Bewegliche Straßenbaumaschinen - Sicherheit - Teil 1: Gemeinsame Anforderungen

Machines mobiles pour la construction de routes - Sécurité - Partie 1: Prescriptions communes

**Ta slovenski standard je istoveten z: EN 500-1:2006/FprA1**

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**ICS:**

93.080.10      Gradnja cest      Road construction

**SIST EN 500-1:2007/kFprA1:2009**      en,fr



EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**FINAL DRAFT**  
**EN 500-1:2006**

**FprA1**

April 2009

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ICS 93.080.10

English Version

## Mobile road construction machinery - Safety - Part 1: Common requirements

Machines mobiles pour la construction de routes - Sécurité  
- Partie 1: Prescriptions communes

Bewegliche Straßenbaumaschinen - Sicherheit - Teil 1:  
Gemeinsame Anforderungen

This draft amendment is submitted to CEN members for unique acceptance procedure. It has been drawn up by the Technical Committee CEN/TC 151.

This draft amendment A1, if approved, will modify the European Standard EN 500-1:2006. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

This draft amendment was established by CEN 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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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Contents

Page

Foreword.....	3
1 <b>Modification to the Contents .....</b>	<b>4</b>
2 <b>Modification to Clause 1, Scope.....</b>	<b>4</b>
3 <b>Modification to Clause 2, Normative references .....</b>	<b>4</b>
4 <b>Modification to Clause 5, Safety requirements and/or protective measures .....</b>	<b>5</b>
5 <b>Modification to Clause 7, Information for the user.....</b>	<b>9</b>
6 <b>Addition of Annex ZB .....</b>	<b>11</b>
7 <b>Modification to the Bibliography.....</b>	<b>11</b>

## Foreword

This document (EN 500-1:2006/FprA1:2009) has been prepared by Technical Committee CEN/TC 151 "Construction equipment and building construction machinery - Safety", the secretariat of which is held by DIN.

This document is currently submitted to the Unique Acceptance Procedure.

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 Annexes ZA and ZB, which are integral parts of this document.

**EN 500-1:2006/FprA1:2009 (E)****1 Modifications to the Contents**

*Update the table of contents.*

**2 Modification to Clause 1, Scope****1.1**

*Add at the end of the last paragraph:*

"and if for those machinery additional derived risks may arise, these risks have to be taken into consideration".

**3 Modification to Clause 2, Normative references**

*Delete all full stops.*

*Delete:*

"EN 418:1992, *Safety of machinery — Emergency stop equipment, functional aspects — Principles for design*",

"EN ISO 3744:1995, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Engineering method in an essentially free field over a reflecting plane (ISO 3744:1994)*

EN ISO 3746:1995, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Survey method using an enveloping measurement surface over a reflecting plane (ISO 3746:1995)*" and

"EN ISO 11201:1995, *Acoustics — Noise emitted by machinery and equipment — Measurement of emission sound pressure levels at a work station and at other specified positions — Engineering method in an essentially free field over a reflecting plane (ISO 11201:1995)*".

*Delete the reference to EN 811:1996 and add "EN ISO 13857:2008, Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2008)" and replace "EN 811" with "EN ISO 13857" and "Annex A of EN 811:1996" with "Annex B of EN ISO 13857:2008" throughout the document.*

*Add:*

"EN ISO 4871:2006, *Acoustics — Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)*" and

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

*Replace "EN 60204-1:1997" with "EN 60204-1:2006" and replace in the title "(IEC 60204-1:1997)" with "(IEC 60204-1:2005, modified)".*

*Replace "EN ISO 2860:1999" with "EN ISO 2860:2008".*

*Replace "EN ISO 2867:2006" with "EN ISO 2867:2008".*

*Replace the reference to prEN ISO 3411:2005 with "EN ISO 3411:2007, Earth-moving machinery — Physical dimensions of operators and minimum operator space envelope (ISO 3411:2007)" and replace "prEN ISO 3411" with "EN ISO 3411" throughout the document.*

Replace "EN ISO 6682:1995" with "EN ISO 6682:2008".

## **4 Modification to Clause 5, Safety requirements and/or protective measures**

### **5.2 Lighting, signalling and marking lights and reflex-reflector devices**

*Add as last paragraph:*

"An electric socket (e.g. cigarette lighter) intended for the connection of a lighting device for service and maintenance use shall be provided on the machine and shall be easily accessible. The design of the sockets shall prevent incorrect connection."

#### **5.3.2 Retrieval, transportation, lifting and towing**

##### **5.3.2.1 General**

*Add the following NOTE as last paragraph:*

"NOTE ISO/DIS 15818 is under preparation and should be checked for reference."

## **5.4 Operator's station**

*Replace the title of the headline with:*

### **"Operator stations".**

#### **5.4.1 General**

*3<sup>rd</sup> indent:*

*Replace "direct" with "release".*

*Add the following NOTE before the existing NOTE:*

"NOTE 1 Those devices (e.g. CCTV, detecting systems) should comply with ISO 16001."

*Replace the existing NOTE with:*

"NOTE 2 For visibility tests and evaluation ISO 5006 should be used."

#### **5.6.2.5 Remote control**

*In the NOTE, delete "recently".*

#### **5.6.2.6 Travel control on ride-on mobile road construction machines**

*Add as second paragraph:*

"If the visibility from the operator's station to the rear is obstructed due to the design requirements or the working application of the machine (e.g. road-milling machines, soil-stabilising machines and recycling machines) with working conditions producing obstruction (e.g. airborne binder or soil particles, steam) of direct view and therefore visibility cannot be achieved in accordance with 5.4.1, 5<sup>th</sup> and 6<sup>th</sup> indent, the machine shall be equipped either with technical measures in the danger zone to prevent reverse movement of the machine or with a visual and/or acoustic warning signal activated automatically when a reversing command is given,

**EN 500-1:2006/FprA1:2009 (E)**

combined with a delay in starting the reverse movement, leaving sufficient time for an exposed person to leave the danger zone."

*Add the following NOTES after the new second paragraph:*

"NOTE 1 When drafting this text it was not possible to define clear criteria for the necessary delay time as it depends on different parameters. It is the idea of the drafters that a delay of 3 seconds (that can be achieved completely or partially by the reaction time of the machine) will in general be appropriate.

NOTE 2 Obstructed view due to machine design is no sufficient reason for using visual or acoustic signal as a sole safety means."

**5.6.2.8 Machines with additional driver's positions**

*Replace "driver's" with "operator's" in the headline and in the 1<sup>st</sup> paragraph.*

*Delete "all" after "with".*

*Add as 2<sup>nd</sup> paragraph:*

"In this case the control system shall be designed in such a way that the use of the controls of one of them precludes the use of the others, except for stop controls and emergency stops, e.g. by "first in first serve" principle, main controls."

**5.7 Starting/stopping**

*Add in headline "/stopping" after "Starting".*

**5.7.1**

*Replace the 2<sup>nd</sup> paragraph with the following:*

"Road construction machines shall be so designed that hazardous movement of the machine or its working equipment and/or attachment shall not be possible without action on the controls whilst starting/stopping the engine.

The function of the starting/stopping procedure shall be described in the instruction handbook."

**5.8 Stopping**

*Replace title of the headline with (5.19 will be deleted):*

**"Conveyors".**

*Add the following text for 5.8 (former text of 5.19): "Conveyors shall be provided with safeguards to protect persons from crushing and shearing hazards and hazards caused by dust or ejected material."*

**5.8.1 Emergency stop**

*Delete this sub-clause and add:*

**"5.7.4 Emergency stop**

.An emergency stop shall be fitted within the zone of comfort as specified in EN ISO 6682. It shall stop all dangerous functions of the machine. The emergency stop shall meet the requirements of EN ISO 13850."



### 5.8.2 Hold-to-run control

*Delete this sub-clause and add:*

#### "5.7.5 Hold-to-run control

Hold-to-run control for travelling shall be provided on all walk-behind operated machines with a speed capability exceeding 0,5 km/h."

### 5.8.3 Braking systems

*Delete this sub-clause and add:*

#### "5.7.6 Braking systems

Mobile road construction machinery shall be equipped with a service, secondary and a parking brake system, efficient under all conditions of service, load, speed, state of ground and slope foreseen by the manufacturer and corresponding to the situations normally encountered."

### 5.10.2 Guards

#### 5.10.2.1 General

*Replace "NOTE" with "NOTE 1".*

*Add after the last paragraph:*

"For road-building machinery like interchangeable equipment, which does not provide an own power source and which is intended to be attached to another machine by the operator via an articulated shaft to the PTO shaft of the energy source, the recipient side of the articulated shaft shall be enclosed in a protective casing fixed to the machinery attached.

NOTE 2 Reference to the embodiment of such guards can be found in EN ISO 4254-1 or EN ISO 5674."

#### 5.10.2.3 Fixed guards

*Replace existing paragraph with the following:*

"Fixed guards that are to be removed as a part of maintenance described in the instruction handbook, shall be fixed by systems that can be opened or removed only with tools. These guards fixing systems shall remain attached to the guards or to the machinery when the guards are removed. Where possible, guards shall be incapable of remaining in place without their fixings."

### 5.11.2 Fuel tanks

*Replace the 2<sup>nd</sup> paragraph with the following text:*

"Non-metallic fuel tanks shall be made of flame retardant material. The speed of flame spread shall not exceed 50 mm/min, when tested according to ISO 3795:1989.

NOTE Further requirements for non-metallic fuel tanks can be found in ISO 21507 and ECE R34."