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Mobile road construction machinery — Safety —

Part 3: Specific requirements for soil-stabilising machines and recycling machines

Machines mobiles pour la construction de routes — Sécurité —

Partie 3: Prescriptions spécifiques pour engins de stabilisation de sol et machines de recyclage

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 195, *Building construction machinery and equipment*.

ISO 20500 consists of the following parts, under the general title *Mobile road construction machinery — Safety*:

- *Part 1: Common requirements*
- *Part 2: Specific requirements for road-milling machines*
- *Part 3: Specific requirements for soil-stabilising machines and recycling machines*
- *Part 4: Specific requirements for compaction machines*
- *Part 5: Specific requirements for paver-finishers*
- *Part 6: Specific requirements for mobile feeders*
- *Part 7: Specific requirements for slip form pavers and texture curing machines*

A list of all parts in the ISO 20500 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

This International Standard is a type C standard as stated in ISO 12100.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this International Standard.

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.

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Mobile road construction machinery — Safety —

Part 3:

Specific requirements for soil-stabilising machines and recycling machines

1 Scope

This part of ISO 20500, together with part 1, deals with all significant hazards for soil-stabilising machines and recycling machines when they are used as intended and under the conditions of misuse which are reasonably foreseeable by the manufacturer associated with the whole life time of the machine (see Annex C).

The requirements of this part are complementary to the common requirements formulated in ISO 20500-1.

This document does not repeat the requirements from ISO 20500-1, but adds or replaces the requirements for application for soil-stabilising machines and recycling machines.

The following significant and relevant hazards are not covered in this document:

— Lightning.

2 Normative references

[ISO/DIS 20500-3](https://standards.iteh.ai/catalog/standards/sist/49c7bcad-4688-4eb0-ae55-10b1a0507f0d/iso-dis-20500-3)

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The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

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 9244:2008+Amd 1:2016, *Earth-moving machinery — Machine safety labels — General principles; Amendment 1*

ISO 10263-4:2009, *Earth-moving machinery — Operator enclosure environment — Part 4: Heating, ventilating and air conditioning (HVAC) test method and performance*

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

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

ISO 20500-1, *Mobile road construction machinery — Safety — Part 1: Common requirements*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

soil stabilizer

machine, either self-propelled or towed, with the function of pulverizing, breaking-up, aerating, homogenizing, and loosening existing and/or imported soil and optionally mixing them together with water and/or binders, e.g. cement or lime

Note to entry: The main purpose of a soil stabilizer is to improve the mechanical and physical properties of the soil material by mixing it with binders (cement, lime, etc.) or filler.

3.2

recycling machines

machine used for the rehabilitation of road structures using reclaimed materials, additionally mixed with binders (e.g. bitumen or cement) and reapplied in situ

3.3

mixing equipment/mixing drum

power-driven cylindrical bodies which rotate during the mixing operation. The surface of the cylindrical bodies is equipped with tools for the mixing process

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4 Safety requirements and/or protective/risk reduction measures

4.1 General

Soil-stabilising machines and recycling machines shall comply with the safety requirements and/or protective/risk reduction measures of this clause. In addition, the machines shall be designed according to the principles of EN ISO 12100:2010 for relevant but not significant hazards which are not dealt with by this document.

Soil-stabilising machines and recycling machines shall comply with the requirements of ISO/DIS 20500-1, as far as not modified or replaced by the requirements of this part.

4.2 Visibility

4.2.1 General

4.2 of ISO 20500-1 applies with the following additions.

4.2.2 Visibility performance criteria

The machine meets the requirements of this International Standard if the measurement results show no maskings or maskings smaller than or equal to the performance criteria with direct or indirect view as specified in Table 1.

Table 1 — Setup of machines

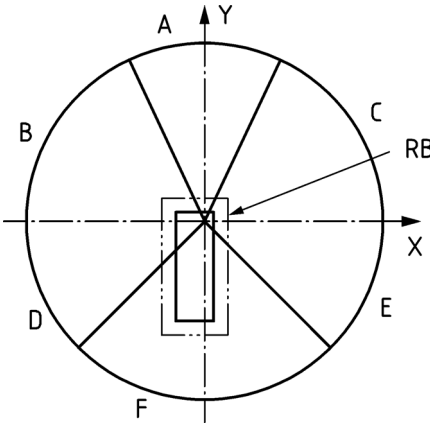
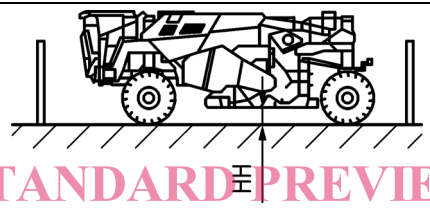
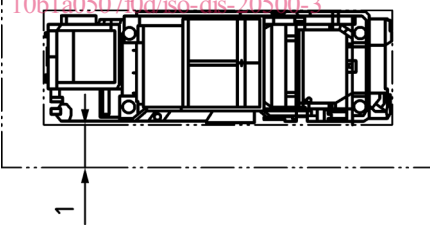
soil-stabilising machines and recycling machines [Example: operator's station position-front]	
	
 <p>HH: Height of mixing drum above ground</p>	
<p>ISO/DIS 20500-3</p> <p>https://standards.iteh.ai/catalog/standards/sist/49c7bca0-4688-4eb0-ae55-10b1a0507f0d/iso-dis-20500-3</p> 	<p>Dimensions in metres</p>
<p>HH = in transport position (min. 200 mm)</p>	

Table 2 — Visibility performance criteria

	A	B	C	D	E	F	RB
soil-stabilising machines and recycling machines							
	205	405	405	405	405	205	405
	2 – 700	1 – 1300	1 – 1300	1 – 700 and 1 – 1300	1 – 700 and 1 – 1300	2 – 700 and 1 – 1300	300

4.2.3 Visibility performance criteria for the RB

The machine meets the requirements of the standard if the measurement results show no maskings or maskings smaller or equal to the acceptable maskings (300 mm) when evaluated using the eye spacing specified in Table 3 for the RB and using the test object height for each region as specified in Table 4.

Table 3 — Vertical test object height by machine type and region of rectangular boundary

Machine Type	Region of the RB			
	Front side	Left hand side	Right hand side	Rear side
soil-stabilising machines and recycling machines	1.5 m	1.5 m	1.5 m	1.5 m

4.3 Operator's station

4.4 of ISO 20500-1 applies with the following addition:

- the operator's station of soil-stabilising machines shall be provided with a cab to protect the operator against dust (e.g. cement and/or lime) generated by the process, except where the intended use of the soil stabilising machine is exclusively the liquid binder application;
- the cab shall be equipped with an air conditioning system (see ISO 10263-4:2009);
- consistent air inlet and distribution shall be provided at the cab;
- air inlet system shall be designed as to minimize turbulences and stirring of dust;
- the air inlet of the cab shall be equipped with dust filters.

NOTE 1 Filter classes and performance are dependent on the application's dust classes. National regulations may apply.

NOTE 2 Requirements for the dust classes and the determination of filter fractional efficiency can be found e.g. EN 1822-1 and EN 29463, parts 2 to 5.