

Gefährdungen	Relevante Abschnitte dieses Dokuments
Fehlerhafte Montage	4.1
Herabfallende oder herausgeschleuderte Gegenstände oder Flüssigkeiten	4.1
Verlust der Standsicherheit/Umkippen von Maschinen	4.1
Rutschen, Stolpern und Fall von Personen (im Zusammenhang mit Maschinen)	4.1, 4.7
Zusätzliche Gefährdungen, Gefährdungssituationen und Gefährdungsereignisse aufgrund von Bewegungen	
Im Zusammenhang mit der Fortbewegung der Maschine	
Fortbewegung beim Starten der Maschine	4.1
Fortbewegung, ohne dass sich der Maschinenführer auf dem Maschinenführersitz befindet	4.1
Fortbewegung, ohne dass alle Teile gesichert sind	4.1
Fahrfunktion	4.1
Zu starke Schwingungen bei der Fortbewegung	4.1
Ungeeignete Möglichkeiten, die Maschine zu verlangsamen, still zu setzen und unbeweglich zu machen	4.1
Fernsteuerung	4.1
In Verbindung mit dem Arbeitsplatz (einschließlich Maschinenführerhaus) auf der Maschine	
Fall von Personen beim Zugang zum (oder am/vom) Fahr-/Arbeitsplatz (zu (oder an/von den) Fahr-/Arbeitsplätzen)	4.1, 4.7
Abgase/Sauerstoffmangel am Arbeitsplatz	4.1
Feuer (Entflammbarkeit der Kabine, Mangel an Feuerlöscheinrichtungen)	4.1
Mechanische Gefährdungen am Arbeitsplatz: a) Kontakt mit den Rädern	4.1
Ungenügende Sicht aus der (den) Fahr-/Arbeitsposition(en)	4.1, 4.2
Ungenügende Arbeits-/Fahrbeleuchtung	4.1
Ungeeigneter Sitz	4.1, 4.4
Lärm am Arbeitsplatz	4.1, 4.11
Vibration am (an) Fahr-/Arbeitsplatz(-plätzen)	4.1, 4.11
Unzureichende Evakuierungsmöglichkeiten/Notausgänge	4.1, 4.7
Zurückzuführen auf das Steuerungssystem	
Ungeeignete Konstruktion hinsichtlich der Energie/Steuerkreise	4.1
Ungeeignete Positionierung von Stellteilen	4.1
Ungeeignete Konstruktion der Stellteile und ihrer Betriebsweisen	4.1
Durch Arbeiten mit der Maschine (Stabilitätsverlust)	4.1
Zurückzuführen auf die Energiequelle und Energieübertragung	
Gefährdungen durch Motor und Batterien	4.1
Gefährdungen durch Bergung, Transport, Heben und Abschleppen	4.1

Gefährdungen	Relevante Abschnitte dieses Dokuments
Durch/für dritte Personen	
Unerlaubtes Starten/Benutzen	4.1
Bewegung eines Maschinenteils über seine Halteposition hinaus	4.1
Fehlen oder mangelnde Eignung von optischen oder akustischen Warneinrichtungen	4.1
Unzureichende Anweisungen für den Maschinenführer/Bediener (Betriebsanleitung, Zeichen, Warnungen und Kennzeichnungen)	4.1, 6

– *Entwurf* –

Contents

Page

Foreword.....	v
Introduction.....	vii
1 Scope	1
2 Normative references	1
3 Terms and definitions.....	2
4 Safety requirements and/or protective/risk reduction measures	3
4.1 General	3
4.2 Visibility	3
4.2.1 Visibility performance criteria	3
4.2.2 Visibility performance criteria for the rectangular boundary RB and side boundary SB	4
4.3 Operator's station.....	7
4.4 Operator's seat	7
4.5 Controls and indicators	7
4.6 Conveyors	8
4.7 Access systems to operator's station and to maintenance points.....	8
4.8 Protection	8
4.9 Signal devices and warning signs.....	8
4.10 Electro-magnetic compatibility (EMC)	8
4.11 Noise and vibration.....	9
4.12 Paver finishers with Emission Reducing Device (ERD)	9
4.13 Paver finishers equipped with a binder spraying system	9
4.13.1 Binder heating system	9
4.13.2 Pipes and hoses for hand lances.....	9
4.13.3 Binder filler openings	10
4.13.4 Binder tank breathing.....	10
5 Verification of the safety requirements and/or protective/risk reduction measures	10
6 Information for use	11
6.1 Instruction handbook	11
Annex A (normative) Noise test code for paver-finishers.....	13
A.1 Scope	13
A.2 Determination of A-weighted sound power level	13
A.2.1 General	13
A.2.2 Measurement surface.....	13
A.2.3 Size of the measurement surface	13
A.2.4 Microphone positions on the hemispherical measurement surface	14
A.2.5 Positioning of the machine.....	14
A.2.6 Repetition of the test	15
A.3 Determination of A-weighted emission sound pressure level at the operator's position.....	15
A.3.1 General	15
A.3.2 Enclosed operator's positions.....	15
A.3.3 Quantities to be determined.....	15

A.3.4	Repetition of the test.....	15
A.3.5	Microphone position(s)	15
A.4	Operation conditions	15
A.4.1	Fan speed	15
A.4.2	Operating conditions for working units	16
A.5	Uncertainty.....	17
A.6	Information to be recorded.....	17
A.7	Information to be reported	17
A.8	Declaration and verification of noise emission values.....	18
Annex B	(normative) Emission reducing device (ERD) – Performance requirements and test procedures	19
B.1	Scope	19
B.2	Terms and definitions	20
B.2.1	Definitions for ERD description	20
B.3	Measurement Equipment and devices	22
B.4	General requirements	22
B.4.1	Quality measures.....	22
B.4.2	Safety precautions	23
B.4.3	Required test-site and environmental specification.....	23
B.5	Installation, qualification and operating conditions of Equipment under test (EUT)	26
B.5.1	General.....	26
B.5.2	EUT settings.....	26
B.5.3	Separation Set-up.....	26
B.5.4	Smoke-Test.....	27
B.6	Performance-Test	27
B.6.1	General.....	27
B.6.2	Methodology and steps of measurement.....	28
B.6.3	EUT-Separation-Test Setup	31
B.6.4	EUT-in-situ-test-Setup	34
B.7	Determination of capture-efficiency.....	36
B.7.1	General.....	36
B.7.2	Determination of EUT-Separation-test-Setup capture-efficiency	37
B.7.3	Determination of EUT-In-situ-test-Setup capture-efficiency	37
B.7.4	Variance and statistical significance.....	37
B.8	Information to be recorded.....	39
B.9	Information to be reported	40
B.10	Declaration and verification of capture-efficiency values	42
Annex C	(informative) Examples of paver-finishers.....	43
Annex D	(normative) List of significant hazards.....	48
For European version only.....		52
Annex ZA	(informative) Relationship between this European Standard and the essential requirements of Directive 2006/42/EC aimed to be covered	53

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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.

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.

- Entwurf -

Mobile road construction machinery — Safety —

Part 5:

Mobile Specific requirements for paver-finishers

1 Scope

This part of ISO 20500, together with part 1, deals with all significant hazards for paver-finisher 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 D).

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 paver-finisher.

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

— Lightning.

2 Normative references

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.

DHHS (NIOSH) Publication Number 97-105:1997, *Engineering Control Guidelines for Hot Mix Asphalt Pavers*

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

ISO 2867:2011, *Earth-moving machinery — Access systems*

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 7096:2000, *Earth-moving machinery — Laboratory evaluation of operator seat vibration*

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 15878, *Road construction and maintenance equipment — Asphalt pavers — Terminology and commercial specifications*