SLOVENSKI STANDARD
SIST EN 15573:2008

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Stroji za zemeljska dela - Zahteve projektiranja za uporabo na cesti

Earth-moving machinery - Design requirements for circulation on the road

Erdbaumaschinen - Anforderungen an die Anwendung auf der Straße

Engins de terrassement - Prescriptions de conception pour la circulation sur route

Ta slovenski standard je istoveten z: EN 15573:2008

ICS:

53.100	Stroji za zemeljska dela	Earth-moving machinery

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English Version

Earth-moving machinery - Design requirements for circulation on the road

Engins de terrassement - Prescriptions de conception pour la circulation sur route

Erdbaumaschinen - Anforderungen an die Anwendung auf der Straße

This European Standard was approved by CEN on 7 March 2008.

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Foreword

This document (EN 15573:2008) 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of an identical text or by endorsement, at the latest by November 2008, and conflicting national standards shall be withdrawn at the latest by November 2008.

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 standard intends to harmonise the various technical requirements of the EEA applicable to earth-moving machinery for their circulation on the road. Earth-moving machinery fulfilling the requirements of this standard may be subject to certain administrative provisions before being permitted to travel on the road.

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 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, hazardous situations and events are covered are indicated in the scope of this 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.

1 Scope

This European Standard specifies the requirements for earth-moving machinery described in EN ISO 6165 [2], intended to travel on the road.

This European Standard specifies the appropriate technical measures to eliminate or reduce risks arising from the significant hazards, hazardous situations and events during on road travel of earth-moving machinery.

This European Standard does not apply to earth-moving machinery with a width exceeding 3 metres (see 4.2.5).

This European Standard does not apply to earth-moving machinery on legs e.g. walking excavators.

This European Standard does not cover the hazards relevant to non-riding and remote control earth-moving machinery.

This European Standard is not applicable to earth-moving machines manufactured before the publication date of this European Standard by CEN.

2 Normative references

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.

EN 474 (all parts), *Earth-moving machinery — Safety*

EN 500 (all parts), *Mobile road construction machinery — Safety*

EN ISO 3450:1996, *Earth-moving machinery — Braking systems of rubber-tyred machines — Systems and performance requirements and test procedures* (ISO 3450:1996)

EN ISO 3457, *Earth-moving machinery — Guards — Definitions and requirements* (ISO 3457:2003)

EN ISO 6683, *Earth-moving machinery — Seat belts and seat belt anchorages – Performance requirements and tests* (ISO 6683:2005)

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

ISO 1724:2003, *Road vehicles — Connectors for the electrical connection of towing and towed vehicles — 7-pole connector type 12 N (normal) for vehicles with 12 V nominal supply voltage*

ISO 5006:2006, *Earth-moving machinery — Operator's field of view – Test method and performance criteria*

ISO 5010, *Earth-moving machinery — Rubber-tyred machines — Steering requirements*

ISO 5676:1983, *Tractors and machinery for agriculture and forestry — Hydraulic coupling — Braking circuit*

ISO 6011, *Earth-moving machinery — Visual display of machine operation*

ISO 6014, *Earth-moving machinery — Determination of ground speed*

ISO 6016, *Earth-moving machinery — Methods of measuring the masses of whole machines, their equipment and components*

ISO/FDIS 6395:2007, *Earth-moving machinery — Determination of sound power level — Dynamic test conditions*

ISO 6489-3:2004, *Agricultural vehicles — Mechanical connections between towed and towing vehicles — Part 3: Tractor drawbar*

ISO 6746-1, *Earth-moving machinery — Definitions of dimensions and codes — Part 1: Base machine*

ISO 6746-2, *Earth-moving machinery — Definitions of dimensions and codes — Part 2: Equipment and attachments*

ISO 9533, *Earth-moving machinery — Machine mounted forward and reverse audible warning alarm — Sound test method*

ISO 10261, *Earth-moving machinery — Product identification numbering system*

ISO 10263-5, *Earth-moving machinery — Operator enclosure environment — Part 5: Windscreen defrosting system test method*

ISO 10265, *Earth-moving machinery — Crawler machines — Performance requirements and test procedures for braking systems*

ISO 10968, *Earth-moving machinery — Operator's controls*

ISO 12509:2004, *Earth-moving machinery — Lighting, signalling and marking lights, and reflex-reflector devices*

ISO/DIS 14401-1:2007, *Earth-moving machinery — Field of vision of surveillance and rear-view mirrors — Part 1: Test methods*

ISO/DIS 14401-2:2007, *Earth-moving machinery — Field of vision of surveillance and rear-view mirrors — Part 2: Performance criteria*

ISO/DIS 15998:2005, *Earth-moving machinery — Machine-control systems (MCS) using electronic components — Performance criteria and tests for functional safety*

ISO 21507, *Earth-moving machinery — Performance requirements for non-metallic fuel tanks*

3 Terms and definitions

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

Earth-moving machinery and their families are defined in EN ISO 6165 [2].

Definitions used in EN and ISO standards referred to in this European Standard are also valid for this document.

Additional definitions specifically needed for this European Standard are added below.

3.1
intended operation
use in earth-moving operation e.g. excavation, loading, transportation, drilling, spreading, compacting or trenching of earth, rock or other materials

3.2
road
public traffic area for use by motor vehicles[1] for travel or transportation, with the exception of the sites of temporary road works e.g. for repairs, maintenance, alterations, improvements, installations or any other works to, above or under a road, including works to road equipment (lighting, barriers, walls…) and roads not open to the public e.g. on new housing and industrial developments, to which public traffic is not permitted

3.3
travel on the road
use on the road for purposes other than intended operation i.e. travelling between sites of work, to and from the site of normal storage, or travelling for refuelling of the machine

3.4
tracklaying
(tracked/crawler)
machine with endless track drive system

3.5
multiple wheel
(roller)
machine with more than two wheels on one or more of the axles, used primarily for compaction performance (for road levelling)

4 Safety requirements and/or protective measures

4.1 General safety

Earth-moving machinery intended for travel on the road shall comply with the requirements and/or protective measures of EN 474 or EN 500, so far as not modified by requirements of this European Standard.

NOTE Machinery is covered by directive 98/37/EC [29].

4.2 Dimensions and masses

4.2.1 General

Machines shall be designed in accordance with the requirements of 4.2.2 to 4.2.6, and equipped so that their dimensions and mass minimise disruptions to the traffic on public roads.

Dimensions and masses of earth-moving machinery shall be determined in accordance with ISO 6016. Unless specifically designed for the purpose of carrying loads during travel on the road i.e. dumpers, the mass of earth-moving machinery does not include any load other than loose tools or appliances necessary for the intended operation and carried on the machine during travel on the road.

Dimensional measurements of earth-moving machinery shall be in accordance with ISO 6746-1 and ISO 6746-2.

Machines shall be assessed with equipment and attachments in the transport configuration as specified by the manufacturer. See also Annex A of ISO 5006.

NOTE One or more A-deviations are relevant to this requirement. See Annex E.

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[1] Motor vehicles as defined in directive 70/156/EEC [11].

4.2.2 Maximum mass

The maximum mass of earth-moving machinery designed to travel on the road should not exceed the limits defined in Table 1:

Table 1 — Maximum mass

Machine configuration	Maximum mass kg
2-axle machines	19 000
3-axle machines	26 000
4-axle machines	32 000
Tracklaying machines	24 000
Multiple wheel machines	19 000

Subject to local conditions i.e. bridge capacities, the maximum mass of earth-moving machinery on certain roads may be increased according to the following formula:

$$M \leq 12\,000 \times A$$

where

M is the maximum mass (kg)

A is the number of axles

NOTE 1 Earth-moving machinery with a maximum mass exceeding the limits shown in Table 1 may be considered as abnormal transport and be subject to local use restrictions which are not dealt with in this European Standard.

NOTE 2 Load restrictions on roads may vary according to seasonal changes e.g. in very low or very high temperature conditions.

4.2.3 Maximum axle load

The maximum axle loads of earth-moving machinery designed to travel on the road shall not exceed the limits defined in Table 2.

Table 2 — Maximum axle load

Machine configuration	Maximum axle load
Driven and non-driven axles	13 000 kg
Tracklaying machines	9 000 kg/m between first and last track roller (see also 4.4.2)

NOTE One or more A-deviations are relevant to this requirement. See Annex E.

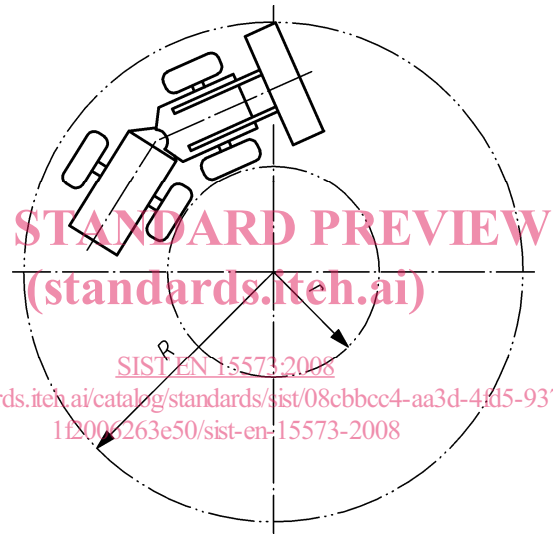
4.2.4 Maximum length

The maximum length of earth-moving machinery designed to travel on the road shall not exceed the limits defined in Table 3. The maximum length includes any mounted equipment or attachments located in the travel position as specified by the manufacturer (see also Annex A of ISO 5006).

Table 3 — Maximum length

Machine configuration	Maximum length m
Rigid machines	12
Articulated machines	The length of the machine must be such that it is able to manoeuvre in left and right directions for a complete circular trajectory (360°) inside an area defined by two concentric circles, the outer circle having a radius of 12,5 m and the inner circle having a radius of 5,3 m, without any of the machine's outermost points (excluding mirrors, indicators, tyre bulge, folding components – lift-up steps and flexible mud-flaps) projecting outside the circumferences of the circles (see Figure 1).

NOTE Earth-moving machinery with a maximum length exceeding the limits shown in Table 3 may be considered as abnormal transport and be subject to local use restrictions which are not dealt with in this European Standard.



R = 12,5 m
r = 5,3 m

Figure 1

4.2.5 Maximum width

The maximum width of earth-moving machinery designed to travel on the road shall not exceed 3 m.

The maximum width includes any mounted equipment or attachments located in the travel position as specified by the manufacturer (see also Annex A of ISO 5006) but shall exclude mirrors, indicators, tyre bulge, folding components – lift-up steps (in their working position) and flexible mud-flaps.

Above 2,55 m additional requirements/protective measures for travel on the road are specified in this European Standard.

NOTE Earth-moving machinery with a maximum width exceeding 2,55 m may be considered as abnormal transport and be subject to local use restrictions which are not dealt with in this European Standard.