
**Road construction and maintenance
equipment — Soil stabilizers —
Terminology and commercial
specifications**

*Équipement pour la construction et l'entretien des routes —
Stabilisateurs du sol — Terminologie et spécifications commerciales*

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ISO 15688:2003

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Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Types and configuration of soil stabilizers	2
4.1 Types	2
4.2 Configuration	2
4.3 Tool driving principle	2
5 Commercial specifications	3
5.1 General	3
5.2 Dimensional characteristics	3
5.3 Mass and load characteristics	4
5.4 Engine characteristics	5
5.5 Characteristics and type of wheels/crawlers	5
5.6 Traction transmission characteristics	6
5.7 Working and travelling speeds	6
5.8 Steering characteristics	6
5.9 Characteristics of the mixing devices	7
5.10 Equipment	11

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 15688 was prepared by Technical Committee ISO/TC 195, *Building construction machinery and equipment*.

It is based on EN 500-3:1995, *Mobile road construction machinery — Safety — Part 3: Specific requirements for soil stabilization machines*.

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Introduction

This International Standard deals with soil stabilizers used in road construction and pavement works.

It provides the terminology for the machine and its components, and also gives operation principles and parameters.

This International Standard deals with commercial specifications and establishes parameters required for technical characteristics of a whole machine and its components, such as a transport vehicle and a mixing device.

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Road construction and maintenance equipment — Soil stabilizers — Terminology and commercial specifications

1 Scope

This International Standard establishes the terminology for soil stabilizers and their components, and gives requirements for operation and commercial specifications.

It is applicable to soil stabilizers intended for road construction and pavement works.

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.

ISO 3911:1998, *Wheels and rims for pneumatic tyres — Vocabulary, designation and marking*

ISO 6746-1:1987, *Earth-moving machinery — Definitions of dimensions and symbols — Part 1: Base machine*

ISO 6746-2:1987, *Earth-moving machinery — Definitions of dimensions and symbols — Part 2: Equipment*

ISO 7134:1993, *Earth-moving machinery — Graders — Terminology and commercial specifications*

ISO 13539:1998, *Earth-moving machinery — Trenchers — Definitions and commercial specifications*

3 Terms and definitions

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

3.1

soil stabilizer

self-propelled machine, towed or transported, with the function of pulverizing, breaking-up aerating, homogenizing, loosening existing or imported materials or pavement materials and mixing it (or them) with one (or more) added materials, such as filler, cement or lime

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

3.2

transport vehicle

machine carrying all of the components, providing movement of the mixing device during work and between work areas

3.3

mixing device

active part, where the components work the materials in place

NOTE The mixing device normally comprises a powered rotor equipped with tools, which rotates during the mixing operation (Figures 1, 2, 3, 4, 5 and 6). In place of a rotor-type device, another style of mixing equipment [e.g. digging, ploughing or scarifying type (Figures 7, 8 and 9)] may be used.

3.4

variable mixer hood

cowling equipped with gates or flaps which controls the time the materials remain in the mixing chamber

3.5

fixed mixer hood

cowling without gates or flaps so no variation of mixing time is possible

4 Types and configuration of soil stabilizers

4.1 Types

Depending on the mixing device, there are three different types of soil stabilizer, as follows.

- a) Mixing: device using rotating tools to cut and reduce to aggregate the material in a mixing chamber (Figures 1 to 6). The rotation axis of the rotors may be horizontal or vertical.
- b) Breaking up: device using special tools with reciprocating movement (digging machine; Figure 7).
- c) Ploughing: device using disk tools (disk ploughs; Figure 8) or tines (scarifier; Figure 9), acting by shearing the materials.

4.2 Configuration

The configuration of soil stabilizers is determined by either the position of the mixing tools in relation to the axles of the transport vehicle, or the type and layout of the working tools with which the machine is equipped.

- a) Position of mixing tool
 - central: the mixing device is suspended between two axles (Figures 1 and 2);
 - rear: the mixing device is carried behind the axles (Figures 3 to 9).
- b) Type and layout of working tool
 - the tools are fixed to a horizontal axis rotary drum (Figures 1 to 5 and Figures 10 to 14);
 - the tools are fixed to the vertical axis rotary disc (Figure 6);
 - the tools are in form of a digging device (Figure 7 and Figure 11);
 - the tools are in form of a ploughing device (Figures 8 and 9).

4.3 Tool driving principle

The following types of tool driving are identified:

- the tools are fixed on the mobile machine;
- the movement of the tools is provided by traction on the ground;

- the movement of tools is provided by independent means, i.e. mechanically or hydraulically actuated drum rotation.

5 Commercial specifications

5.1 General

The dimensional and mass characteristics specified below do not apply to grader- and trencher-based soil stabilizers. For these machines, the specifications given in ISO 6746-1, ISO 6746-2, ISO 7134 and ISO 13539 apply.

5.2 Dimensional characteristics

5.2.1 Shipping dimensions (overall)

The following dimensions shall be specified.

- Length mm
- Width mm
- Height:
 - without cab mm
 - with cab mm

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5.2.2 Overall dimensions of a machine in operating mode (see Figure 16)

The following dimensions shall be specified.

- Length, L mm
- Width, W mm
- Height:
 - without cab, E mm
 - with cab, H mm

5.2.3 Clearance

Specify the clearance with tool raised.

5.2.4 Wheel base (see Figure 16)

The following dimensions shall be specified.

- Distance between axles, D mm
- Distance between rotor axis and front wheel axis, F mm
- Distance between rotor axis and rear wheel axis mm

5.2.5 Turning and slewing radius

The following dimensions shall be specified.

- Turning radius inside mm
- Turning radius outside mm
- Inside slewing radius of work tool mm
- Outside slewing radius of work tool mm

5.2.6 Overhangs and offsets

The following dimensions shall be specified.

- Front overhang mm
- Rear overhang mm
- Right lateral offset mm
- Left lateral offset mm

5.2.7 Characteristic angles

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The following dimensions shall be specified.

- Central articulation angle of the articulated chassis [ISO 15688:2003](https://standards.iteh.ai/catalog/standards/sist/550627ab-58f5-434c-acc3-5c9e93/iso-15688) + degree
- Central oscillation angle of the articulated chassis [ISO 15688:2003](https://standards.iteh.ai/catalog/standards/sist/550627ab-58f5-434c-acc3-5c9e93/iso-15688) + degree
- Oscillation angle of the front axle + degree
- Oscillation angle of the rear axle + degree

NOTE Articulation and oscillation angles refer to total values of these parameters.

5.3 Mass and load characteristics

5.3.1 Operating mass

Specify the mass of the basic machine under the following conditions:

- ready to run;
- with or without cab (to be stated);
- including standard equipment;
- with a driver of mass 75 kg;
- with fuel and additive tanks half full;
- with cooling, lubrication and hydraulic systems full.

5.3.2 Load per axle

The following dimensions shall be specified.

- Load measured on front axle daN
- Load measured on rear axle daN

5.3.3 Other masses

Specify the mass of ballast, in kilograms.

5.4 Engine characteristics

The following characteristics shall be specified.

- Manufacturer and model
- Power (specify standard) kW
- Cooling type
- Exhaust compliance (specify standard)

5.5 Characteristics and type of wheels/crawlers

The following characteristics shall be specified.

- a) Soil stabilizers based on wheeled chassis: [ISO 15688:2003](https://standards.iteh.ai/catalog/standards/sist/550627ab-58f5-434c-aec3-54f1665925/iso-15688-2003)
<https://standards.iteh.ai/catalog/standards/sist/550627ab-58f5-434c-aec3-54f1665925/iso-15688-2003>
- front wheel dimensions (according to ISO 3911:1998)
 - rear wheel dimensions (according to ISO 3911:1998)
 - number of wheels:
 - front
 - rear
 - number of driven wheels:
 - front
 - rear
- b) Soil stabilizers based on crawler:
- numbers of crawlers
 - number of idlers
 - front
 - rear