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

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

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Published in Switzerland

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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*.

This second edition cancels and replaces the first edition (ISO 15688:2003), which has been technically revised. The revision includes updates with respect to the state-of-the-art machine types, and exclusion of the soil stabilizers considered as agricultural machines; in addition, the scope has been limited to specialized machines used in road construction only.

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Introduction

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

It provides the terminology of the machine and its components, also the definitions of operation principles and parameters.

It deals with commercial specifications, and establishes parameters required for technical characteristics of a whole machine and its components, such as transport vehicle and 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, definitions of operation and commercial specifications for soil stabilizers and their components intended for use in road construction and pavement works.

It does not apply to soil stabilizers used in agricultural applications.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies..

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

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

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3 Terms and definitions

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

3.1

soil stabilizer

self-propelled machine, either towed or transported, with the function of pulverizing, breaking-up, aerating, homogenizing, and loosening existing and imported soil or paving materials and mixing them together with one or more additive materials such as filler, cement or lime

NOTE 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

transport machine

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

3.3

mixing device

device comprised of active components that work the materials in place, e.g. either by mixing or breaking up actions

NOTE The mixing device normally comprises a powered rotor equipped with tools, which rotates during the mixing operation (Figures A.1 to A.5). Another type of mixing device may utilize special tools that reciprocate during the mixing operation (Figure A.6).

**3.4
variable mixer chamber**

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

**3.5
fixed mixer chamber**

chamber 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 two different types of soil stabilizer:

- a) mixing: using rotating tools to cut and reduce to aggregate the material in a mixing chamber (see Figures A.1 to A.5). The rotation axis of the rotors may be horizontal or vertical;
- b) breaking up: using special tools with reciprocating movement (digging machine, see Figure A.6).

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 machine 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 front and rear axles (see Figures A.1 and A.2);
 - rear: the mixing device is carried behind the axles (see Figures A.3 to A.6).
- b) Type and layout of working tool:
 - tools fixed to a horizontal axis rotary drum (see Figures A.1 to A.4 and Figures A. 7 to A.10);
 - tools fixed to the vertical axis rotary disc (see Figure A.5);
 - tools in form of digging device (see Figures A.6 and A.8).

4.3 Tool driving principle

The movement of tools is provided by mechanical or hydraulic driving systems.

5 Commercial specifications

5.1 General

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

5.2 General data

Specify the following:

- a) Manufacturer or importer (if imported)
- b) Model

- | | |
|---------------------------------------|----|
| c) Power installed (specify standard) | kW |
| d) Shipping dimensions (overall) | |
| — Length | mm |
| — Width | mm |
| — Height: | |
| — without cab | mm |
| — with cab | mm |
| e) Shipping mass | kg |

5.3 Dimensional characteristics

5.3.1 Overall dimensions of a machine in operating mode

See Figure A.12.

The following dimensions shall be specified.

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

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5.3.2 Ground clearance

Specify the ground clearance with tool raised (see Figure A.13).

5.3.3 Wheel base

See Figure A.12.

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 |

5.3.4 Turning radius

The following dimensions shall be specified:

- | | |
|--------------------------|----|
| — Turning radius inside | mm |
| — Turning radius outside | mm |

5.3.5 Overhangs and offsets

The following dimensions shall be specified:

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

5.3.6 Characteristic angles

The following dimensions shall be specified:

- Central articulation angle of articulated chassis + deg.
- Central oscillation angle of articulated chassis + deg.
- Oscillation angle of front axle + deg.
- Oscillation angle of rear axle + deg.
- Cross slope/angle of rotor chamber + deg.

5.4 Mass and load characteristics

5.4.1 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

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5.4.2 Load per axle

The following shall be specified:

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

5.4.3 Other masses

Specify the mass of ballast, in kilograms.

5.5 Engine characteristics

The following characteristics shall be specified:

- Manufacturer and model
- Power (specify standard) kW

- Cooling type
- Exhaust compliance (specify standard)

5.6 Characteristics and type of wheels/crawlers

a) Soil stabilizers based on wheeled chassis:

- Front wheel dimensions (according to ISO 3911)
- Rear wheel dimensions (according to ISO 3911)
- Number of wheels:
 - front
 - rear
- Number of driven wheels:
 - front
 - rear

b) Soil stabilizers based on crawler:

- Number of crawlers
- Number of idlers:
 - front
 - rear <https://standards.iteh.ai/catalog/standards/sist/db1ceedc-7f33-4f58-89b0-6a2a26a7a0b9/iso-15688-2012>
- Number of drive sprockets:
 - front
 - rear

5.7 Traction transmission characteristics

The following characteristics shall be specified:

- Transmission type:
 - hydrostatic
 - mechanical
 - hydro-mechanical
 - electrical

5.8 Working and travelling speeds

The following characteristics shall be specified: