

INTERNATIONAL
STANDARD

ISO
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**Earth-moving machinery — Dumper body
support and operator's cab tilt support
devices**

*Engins de terrassement — Dispositifs de support de la benne ou de la
cabine de l'opérateur en position inclinée*



Reference number
ISO 13333:1994(E)

Foreword

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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.

International Standard ISO 13333 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 2, *Safety requirements and human factors*.

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Earth-moving machinery — Dumper body support and operator's cab tilt support devices

1 Scope

This International Standard specifies the performance and test requirements for mechanical support devices for dumper bodies, dumper body substitutes and operator's cabs on earth-moving machines as defined in ISO 6165, equipped with a lift support where it is required that the dumper body, dumper body substitute or operator's cab be held in a raised or tilted position for maintenance, servicing or other non-operational purposes.

It also specifies installation instructions, storage and colour requirements for such dumper body and operator cabin tilt support devices.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 6165:1987, *Earth-moving machinery — Basic types — Vocabulary*.

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 dumper body: Body of a dumper which transports earth or other loose materials.

3.2 dumper body substitute: Device which can be used in place of the dumper body, e.g. tanks, unit-load-handling devices equipped with a hook.

3.3 operator's cab: Enclosure on the earth-moving machine from where the machine is operated.

3.4 mechanical support device(s): One or more links, cables, bars or structures including attachment points and parts, designed to support the dumper body, dumper body substitute or operator's cab.

3.5 working circuit pressure: That nominal pressure applied to the specific circuit by the pump(s).

3.6 dumper body mass; dumper body substitute mass; operator's cab mass: Mass of the dumper body, dumper body substitute or operator's cab which is supported by the device.

4 Performance requirements

The mechanical support device for the dumper body, dumper body substitute and/or operator's cab shall be designed:

- a) to withstand the static load imposed by the lowering force, i.e. 1,2 times the working circuit pressure, plus a force which corresponds to the mass of the empty dumper body, dumper body substitute or operator's cab, and the mass of any attachments, arms and linkage acting on the support device;
- b) for systems that do not have a lowering force other than gravity and have the tipping device mechanically locked, to withstand a force which corresponds to twice the mass of the empty dumper body, dumper body substitute or operator's cab.

The support device(s) shall not be dislocated if lifting force is applied to the dumper body, dumper body substitute and/or operator's cab. It shall also retain its safety function whenever the dumper body, the dumper body substitute and/or operator's cab are returned to the original position.

The lifting or lowering forces and masses shall be determined by consulting the manufacturer's maximum recommended specification.

5 Other requirements

5.1 Installation

The support device shall be installed within the machine structure so that no unintended dislodging or disengagement of the support device will happen.

The device shall be independent from all other systems used under normal operation and maintenance.

When the device is installed for its safety function, it shall not be possible to dislodge or disengage the safety support device involuntarily.

It is recommended that the raised dumper body, dumper body substitute and/or operator's cab position be selected to provide good access for maintenance and service operation. The support device should be capable of being installed and handled by one person.

5.2 Installation and removal instructions

Installation instructions shall be provided by permanent means in a location adjacent to the point of use. The instructions should clearly state

- a) the danger of staying beneath the dumper body, dumper body substitute and/or operator's cab, unless the support device is installed in its safeguarding position, the gearshift is set in neutral and, if applicable, instructions are presented about the mechanical lock of the tipping device.

- b) that maintenance and servicing operations should be made with an empty dumper body, dumper body substitute and/or operator's cab.

The instruction handbook for operation and maintenance shall further specify that the support device is dimensioned for an unladen dumper body or unladen dumper body substitute and/or empty operator's cab only.

Removal instructions for the support device should also be included.

5.3 Storage

The support device and its required parts shall be stored permanently on the machine in a secure manner.

5.4 Colour

The support device, excluding the attaching parts, shall be red on all machines except where the machine colour is red or the device is a cable or cables, in which case the support device shall be yellow.

6 Test

A physical test is required to verify the design criteria of clause 4 for each different design of support device. The support device(s) shall withstand the test and not exhibit any permanent structural deformation or failure.

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