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AMENDMENT 1
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Earth-moving machinery — Machine-mounted retrieval device — Performance requirements

AMENDMENT 1

Engins de terrassement — Dispositif de remorquage monté sur l'engin — Exigences de performance

AMENDEMENT 1

Reference number
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Foreword

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Amendment 1 to ISO 10532:1995 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 1, *Test methods relating to machine performance*.

Earth-moving machinery — Machine-mounted retrieval device — Performance requirements

AMENDMENT 1

Page 2, Clause 4

Add the following new subclause.

"**4.7** The machine operating manual shall provide instructions regarding the method of retrieving or towing the machine if the manufacturer recommends that devices such as wire ropes, chains or links be wound around structural members as a means for retrieval."

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Annex A of this International Standard is for information only.

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Earth-moving machinery — Machine-mounted retrieval device — Performance requirements

1 Scope

This International Standard defines the performance requirements of a retrieval device mounted on an earth-moving machine listed in ISO 6165. Requirements for verification testing, if needed, are included.

Studies have shown that the tow rope, used for retrieving a large disabled or mired earth-moving machine is seldom larger than 40 mm diameter wire rope. This is typically the largest size that can be handled by the person connecting the tow rope to the machine.

Therefore, this International Standard is applicable to machine-mounted retrieval devices of capacities not exceeding 10^6 N. This value corresponds to the minimum breaking force of a 40 mm diameter Group 3 wire rope with steel core as listed in ISO 2408.

NOTE 1 In accordance with ISO 6750, information on the location and instructions for proper use of retrieval devices is provided in the operator manual.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were 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 editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 6016:1982, *Earth-moving machinery — Methods of measuring the masses of whole machines, their equipment and components.*

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

ISO 9248:1992, *Earth-moving machinery — Units for dimensions, performance and capacities, and their measurement accuracies.*

3 Definitions

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

3.1 machine-mounted retrieval device: Connector attached to a machine that provides a means to attach a tow rope, a chain, or a tow bar to a disabled or mired machine.

3.2 capacity (of a retrieval device)**:** Value, expressed in newtons, of the force applied to a machine-mounted retrieval device that results in a stress level equal to the yield strength of the material that is used to manufacture the retrieval device.

3.3 machine mass for calculation

(1) **For tractor-scrapers and dumpers:** Combined mass of the machine's operating mass, as defined in ISO 6016, and the rated paymass as specified by the manufacturer.

NOTE 2 This mass is the "loaded mass". (See ISO 7132 and ISO 7133.)

(2) **For all other machines:** Operating mass of the machine, as defined in ISO 6016.

3.4 maximum pull angle: Angle of 20 ° which is the included angle of a cone with an axis that is a horizontal line passing through the tow rope connecting point on the machine-mounted retrieval device and parallel to the longitudinal axis of the machine, but limited by interference with parts of the machine.

4 Requirements

4.1 The capacity, in newtons, of the machine-mounted retrieval device shall be equal to 1,5 times the machine mass for calculation (see 3.3), multiplied by the acceleration due to gravity (g) except for tractor-scrapers and bottom dumpers. For these machines the capacity, in newtons, shall be equal to the machine mass for calculation multiplied by the acceleration due to gravity (g).

NOTE 3 The capacity of the retrieval device for any machine need not exceed 10^6 N. (See Scope.)

4.2 The machine-mounted retrieval device shall withstand the capacity defined in 4.1 at the maximum pull angle.

4.3 The machine-mounted retrieval device shall be made of materials that display visible signs of deformation (yield) before failure (fracture) so that it is apparent that it has been overloaded and must be repaired or replaced.

4.4 The machine-mounted retrieval device shall be designed to accept a wire rope sling or clevis of a size capable of withstanding the force corresponding to the capacity defined in 4.1.

4.5 If a pull-pin type retrieval device is used, provisions shall be made to retain the pin in place during use and to prevent the pin from being lost when it is not in use.

4.6 The machine-mounted retrieval device may be mounted at the front and/or rear of the machine. It shall be in a location that is easily accessible for attaching a tow rope, a chain, or a tow bar.

For machines with a machine operating mass larger than 10^5 kg, a second retrieval device should be provided on the same end of the machine. Each device shall conform with the requirements of this International Standard.

5 Verification

5.1 The performance requirements of the retrieval device and its supporting structure on the machine shall be verified by testing or by calculation.

5.2 If verified by testing, one pull at the maximum pull angle in the horizontal plane and one pull at the maximum pull angle in the vertical plane shall be made. The force applied shall correspond to the capacity defined in 4.1. Tolerances for test loads and pull angle shall be as given in ISO 9248.

Annex A
(informative)

Bibliography

[1] ISO 2408:1985, *Steel wire ropes for general purposes — Characteristics.*

[2] ISO 6750:1984, *Earth-moving machinery — Operation and maintenance — Format and content of manuals.*

[3] ISO 7132:1990, *Earth-moving machinery — Dumpers — Terminology and commercial specifications.*

[4] ISO 7133:1994, *Earth-moving machinery — Tractor-scrapers — Terminology and commercial specifications.*

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Descripteurs: earth-moving equipment, mechanical couplings, towing attachments, specifications, performance, verification.

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