
**Earth-moving machinery — Field of
vision of surveillance and rear-view
mirrors —**

**Part 2:
Performance criteria**

iTeh STANDARD PREVIEW

*Engins de terrassement — Champ de visibilité des rétroviseurs et des
miroirs de surveillance —*

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Partie 2: Critères de performance

ISO 14401-2:2004

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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 14401-2 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 1, *Test methods relating to machine performance*.

ISO 14401 consists of the following parts, under the general title *Earth-moving machinery — Field of vision of surveillance and rear-view mirrors*:

— *Part 1: Test methods*

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— *Part 2: Performance criteria*

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Introduction

This part of ISO 14401 specifies criteria for evaluating the performance of surveillance and rear-view mirrors. When mirrors are provided on earth-moving machines to supplement the operator's direct field of vision, they serve as an aid to the operator in seeing people and/or machines that can be in specific areas around the machine.

Machine operators are positioned on the machine such that they have the most direct vision to the working tool or for the principle function of the machine. The addition of a mirror or mirrors assists the operator in viewing many different areas around the machine so as to improve the ability of the operator to safely operate the machine, with less fatigue.

Effectively placed mirrors can provide visibility to areas where the direct field of vision is blocked due to parts of the machine. Certain machines such as dumpers, large excavators and scrapers have visibility blockages that could restrict operating manoeuvres. Mirrors can provide indirect vision to these areas and improve the effectiveness of machine usage. For example, dumper operators can most effectively operate at the dump area when they can view the position of the rear tyres and dump-over berm, an excavator operator can operate most safely when the right rear corner of the counterweight can be viewed, and a scraper operator can make a sharp right turn when the right side of the scraper is able to be observed.

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Earth-moving machinery — Field of vision of surveillance and rear-view mirrors —

Part 2: Performance criteria

1 Scope

This part of ISO 14401 specifies criteria for the field of vision performance of surveillance and rear-view mirrors on earth-moving machinery. It is applicable to self-propelled wheeled and track-type earth-moving machinery with a seated operator, as defined in ISO 6165, used on and off public roads.

NOTE Additional national road regulations may apply for machines travelling on public roads.

It is not applicable to the following machines, as defined in ISO 6165:

- pedestrian controlled machines;
- excavators with an operating mass (see ISO 6016) of more than 50 000 kg;
- pipelayers;
- crawler-type minimum swing radius excavators (MSRX);
- skid-steer loaders;
- compact excavators;
- compact dumpers;
- compact rollers;
- trenchers.

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 5006-1, *Earth-moving machinery — Operator's field of view — Part 1: Test method*

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

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

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 14401-1 and the following apply.

3.1 measuring location

location for measuring the field of vision

NOTE For classification of the field of vision, see Clause 4.

4 Classification of field of vision

Class A: field of vision at ground level as specified in 5.4.2 and in accordance with Figure 1;

Class B: field of vision at ground level as specified in 5.4.3 and in accordance with Figure 2;

Class C: field of vision at ground level as specified in 5.4.4 and in accordance with Figure 3;

Class D: field of vision at ground level as specified in 5.4.5 and in accordance with Figure 4;

Class E: field of vision at ground level as specified in 5.4.6 and in accordance with Figure 5.

5 Requirements

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5.1 General

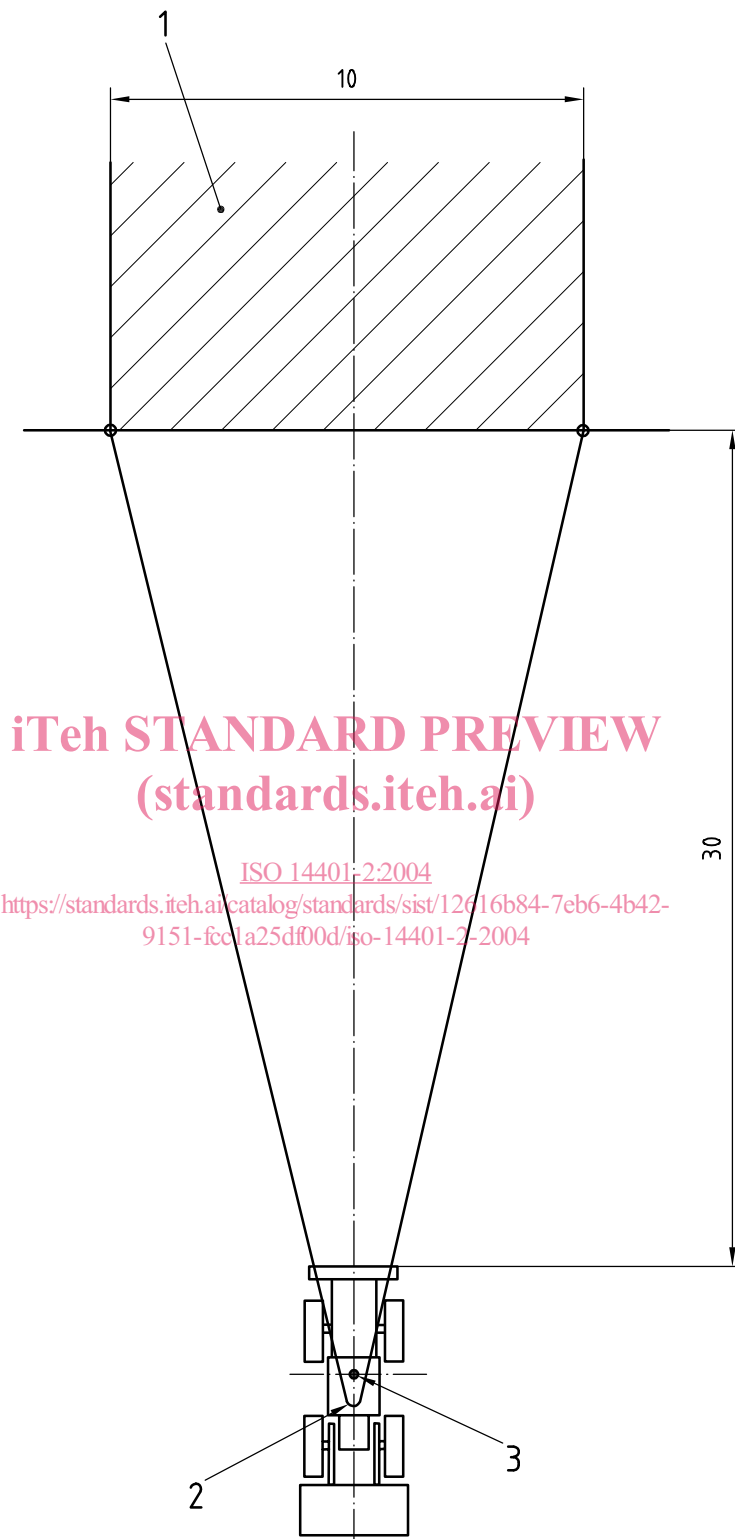
Mirrors and their mounting shall meet the following requirements.

- a) Mirrors provided on earth-moving machinery shall be in accordance with Figures 1 to 5 and shall satisfy the requirements of Table A.1.
- b) A mirror or mirrors shall be installed such that they do not move or vibrate extensively.
- c) Part or parts of the rear end, left and right of the machine shall be visible to the operator by means of a mirror or mirrors.

5.2 Position

Mirror positions shall meet the following requirements.

- a) Exterior rear-view mirrors shall be visible through the portion of the windscreen that is swept by the windscreen wiper or through the side windows.
- b) A rear-view mirror shall not project laterally beyond the outer contour of the machine by more than is necessary to obtain the field of vision specified in 5.4.
- c) Where the bottom edge of an exterior rear-view mirror is less than 2 m above the ground, the mirror shall not project more than 0,3 m beyond the overall width of the machine.



Key

- 1 field of vision at ground level
- 2 rear-view mirror
- 3 filament position centre point

Figure 1 — Field of vision, Class A