INTERNATIONAL STANDARD

ISO 10263-6

Second edition
2009-02-01

Earth-moving machinery — Operator enclosure environment —

Part 6: Determination of effect of solar heating

Engins de terrassement — Environnement de l'enceinte de l'opérateur —

Partie 6: Détermination de l'effet du chauffage solaire

Reference number
ISO 10263-6:2009(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

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 10263-6 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 2, *Safety, ergonomics and general requirements*.

This second edition cancels and replaces the first edition (ISO 10263-6:1994), which has been technically revised.

ISO 10263 consists of the following parts, under the general title *Earth-moving machinery — Operator enclosure environment*:

— *Part 1: Terms and definitions*

— *Part 2: Air filter element test method*

— *Part 3: Pressurization test method*

— *Part 4: Heating, ventilating and air conditioning (HVAC) test method and performance*

— *Part 5: Windscreen defrosting system test method*

— *Part 6: Determination of effect of solar heating*

Earth-moving machinery — Operator enclosure environment —

Part 6:
Determination of effect of solar heating

1 Scope

This part of ISO 10263 specifies a test method for simulating solar heating in the laboratory and measuring the radiant heat energy from a natural or simulated source. It is applicable to earth-moving machines when equipped with an operator enclosure.

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 10263-1, *Earth-moving machinery — Operator enclosure environment — Part 1: Terms and definitions*

ISO 10263-4, *Earth-moving machinery — Operator enclosure environment — Part 4: Heating, ventilating and air conditioning (HVAC) test method and performance*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 10263-1 and the following apply.

3.1
solar heating
heating factor from the sun to be considered in determining air circulation and cooling requirements necessary to maintain comfortable temperature inside the operator enclosure

3.2
solar radiant energy
process by which solar heating is generated

4 General

4.1 The intended result of this method is to record the radiant heat energy affecting an operator enclosure during tests of the air conditioning system.

4.2 This method shall be used in conjunction with the test given in ISO 10263-4.

5 Test equipment

5.1 **Measuring device**, such as pyranometer with an accuracy of ± 3 % of the observed values.

5.2 **Light source**, such as lamps having 45 % or more of its radiated heat energy above 700 J.

5.3 **Tripod**.

6 Measurement of solar radiant energy during field tests

6.1 Place an appropriate measuring device such as a pyranometer, in the same general area as the operator enclosure under test. Measure the radiance at 10 min intervals during the test period. These readings shall be averaged and recorded as part of the reported results.

6.2 A measured average solar radiant energy of (950 ± 95) W/m^2 is considered normal test conditions.

7 Method of simulating solar radiant energy during laboratory tests

7.1 Place the lamps in banks above the operator enclosure being tested and in a horizontal plane.

7.2 The area within the perimeter of the light banks shall extend 25 % beyond the projected area of the operator enclosure under test when measured in all four directions.

7.3 In order to simulate the effects of solar heating, the light source shall have 45 % or more of its radiated energy above 700 J. It is recommended that the method of controlling the intensity not change the spectral distribution of the lamps.

8 Calibration of solar radiant energy from a simulated source

8.1 Mount a pyranometer on a tripod and maintain it on a horizontal plane.

8.2 The plane of measurement shall be ± 100 mm lower than the roof line of the operator enclosure under test.

8.3 Take readings at points on or within the perimeter of the area of uniform intensity as shown in Figure 1. Make sufficient measurements to ensure uniformity. The maximum distance between measuring points shall be 1 200 mm.

8.4 The intensity level shall be adjusted to an average of (950 ± 95) W/m^2. No individual reading shall vary by more than 10 % from the average.

8.5 The intensity level shall be recalibrated every six months or every time the elevation of the roof line of the operator enclosure being tested is changed.