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Earth-moving machinery — Physical dimensions of operators and minimum operator space envelope



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Preface

This Standard was prepared by the Standards Australia Committee ME-063, Earthmoving Equipment.

The objective of this document is to provide the dimensions of operators of earth-moving machinery as defined in ISO 6165 and specify the minimum normal operating space envelope within the operator enclosures.

This document is identical with, and has been reproduced from, ISO 3411:2007, *Earth-moving machinery — Physical dimensions of operators and minimum operator space envelope*.

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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 3411 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 2, *Safety requirements and human factors*.

This fourth edition cancels and replaces the third edition (ISO 3411:1995), which has been technically revised.

Introduction

The operator dimensions in this International Standard are derived from male and female data from the United States of America (CAESAR Data), Europe (ISO 15534-3:2000) and Asia (China, Japan, Korea and Thailand).

The dimensions of the male Asian data were found to be within the range of the 5th and 95th percentiles of the combined USA and European data. Thus, to represent the operator populations for the USA and Europe, the operator dimension data are based upon the data from those two regions. To account for the potential increase in female Asian operators, the small operator dimension values were maintained from ISO 3411:1995 and used instead of the larger dimensions from the USA and European data.

The dimensions given in this International Standard are either actual measurements obtained from the sources listed above or, when specific dimensions were not available, were derived by proportionally scaling the values from ISO 3411:1995, based on the trend of growth seen across the available measured dimensions.

The operator minimum normal interior space envelope for enclosures stated in this International Standard can be supplemented or modified by standards for specific earth-moving machinery.

NOTES

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1 Scope

This International Standard provides the dimensions of operators of earth-moving machinery as defined in ISO 6165 and specifies the minimum normal operating space envelope within the operator enclosures.

It is not applicable to machines manufactured prior to the date of its publication.

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 5353:1995, *Earth-moving machinery, and tractors and machinery for agriculture and forestry — Seat index point*

ISO 6165:2006, *Earth-moving machinery — Basic types — Identification and terms and definitions*

ISO 11112:1995, *Earth-moving machinery — Operator's seat — Dimensions and requirements*

3 Terms and definitions

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

3.1

small operator

operator belonging to the worldwide earth-moving machinery operator population where approximately 5 % of operators are smaller than the dimension listed

3.2

medium operator

operator belonging to the worldwide earth-moving machinery operator population where approximately 50 % of operators are smaller than the dimension listed and the remaining worldwide earth-moving machinery operator population is larger than the dimension listed

3.3

large operator

operator belonging to the worldwide earth-moving machinery operator population where approximately 5 % of operators are larger than the dimension listed

3.4

working posture

posture an operator assumes while doing work

3.5

erect posture

standing or sitting upright without a backrest

4 Physical dimensions of operators

The ranges of physical dimensions for standing and seated operators are shown in [Figures 1 and 2](#). The ranges of derived body pivot dimensions are shown in [Figure 3](#). The dimensions include a