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

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English Version

Earth-moving machinery - Physical dimensions of operators and  
minimum operator space envelope (ISO 3411:2007)

Engins de terrassement - Dimensions des opérateurs et  
espace enveloppe minimal pour les opérateurs (ISO  
3411:2007)

Erdbaumaschinen - Körpermaße von Maschinenführer und  
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## Foreword

This document (EN ISO 3411:2007) has been prepared by Technical Committee ISO/TC 127 "Earth-moving machinery" in collaboration with Technical Committee CEN/TC 151 "Construction equipment and building material machines - Safety", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2008, and conflicting national standards shall be withdrawn at the latest by July 2010.

This document supersedes EN ISO 3411:1999.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA and ZB which is an integral part of this document.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## Endorsement notice

The text of ISO 3411:2007 has been approved by CEN as EN ISO 3411:2007 without any modifications.

## **Annex ZA** (informative)

### **Relationship between this International Standard and the Essential Requirements of EU Directive 98/37/EC, amended by Directive 98/79/EC**

This International Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 98/37/EC, amended by Directive 98/79/EC.

Once this standard is cited in the Official Journal of the European Communities under that Directive and has been implemented as a national standard in at least one Member State, compliance with the normative clauses of this standard confers, within the limits of the scope of this standard, a presumption of conformity with Essential Requirement 3.2.1 (paragraphs 1 and 5) of that Directive and associated EFTA regulations.

**WARNING:** Other requirements and other EU Directives may be applicable to the products falling within the scope of this standard.

## **Annex ZB** (informative)

### **Relationship between this International Standard and the Essential Requirements of EU Directive 2006/42/EC**

This International Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide one means of conforming to Essential Requirements of the New Approach Directive 2006/42/EC on machinery.

Once this standard is cited in the Official Journal of the European Communities under that Directive and has been implemented as a national standard in at least one Member State, compliance with the normative clauses of this standard confers, within the limits of the scope of this standard, a presumption of conformity with Essential Requirement 1.1.7 (paragraph 3) of that Directive and associated EFTA regulations.

**WARNING:** Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

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## 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 5<sup>th</sup> and 95<sup>th</sup> 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.

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

## 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