SLOVENSKI STANDARD
SIST EN ISO 20685-2:2017

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Ergonomija - Metode 3D-skeniranja za mednarodno združljive baze antropometrijskih podatkov - 2. del: Protokol ovrednotenja površine telesa in ponovljivosti relativnih merilnih točk (ISO 20685-2:2015)

Ergonomics - 3-D scanning methodologies for internationally compatible anthropometric databases - Part 2: Evaluation protocol of surface shape and repeatability of relative landmark positions (ISO 20685-2:2015)

Ergonomie - Scanverfahren für international kompatible anthropometrische Datenbanken - Teil 2: Prüfprotokoll für Körperoberflächen und Wiederholbarkeit relativer Messpunktpositionen (ISO 20685-2:2015)

Ergonomie - Méthodologies d'exploration tridimensionnelles pour les bases de données anthropométriques compatibles au plan international - Partie 2: Protocole d'évaluation de la forme extérieure et de la répétabilité des positions relatives de repères (ISO 20685-2:2015)

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Ergonomics - 3-D scanning methodologies for internationally compatible anthropometric databases - Part 2: Evaluation protocol of surface shape and repeatability of relative landmark positions (ISO 20685-2:2015)

Ergonomie - Méthodologies d'exploration tridimensionnelles pour les bases de données anthropométriques compatibles au plan international - Partie 2: Protocole d'évaluation de la forme extérieure et de la répétabilité des positions relatives de repères (ISO 20685-2:2015)

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

The text of ISO 20685-2:2015 has been prepared by Technical Committee ISO/TC 159 “Ergonomics” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 20685-2:2017 by Technical Committee CEN/TC 122 “Ergonomics” 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of an identical text or by endorsement, at the latest by September 2017, and conflicting national standards shall be withdrawn at the latest by September 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

The text of ISO 20685-2:2015 has been approved by CEN as EN ISO 20685-2:2017 without any modification.

INTERNATIONAL STANDARD

ISO 20685-2

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Ergonomics — 3-D scanning methodologies for internationally compatible anthropometric databases —

Part 2: Evaluation protocol of surface shape and repeatability of relative landmark positions

Ergonomie — Méthodologies d'exploration tridimensionnelles pour les bases de données anthropométriques compatibles au plan international —

Partie 2: Protocole d'évaluation de la forme extérieure et de la répétabilité des positions relatives de repères

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 159, *Ergonomics*, Subcommittee SC 3, *Anthropometry and biomechanics*.

ISO 20685 consists of the following parts, under the general title *3-D scanning methodologies for internationally compatible anthropometric databases*:

— *Part 2: Evaluation protocol of surface shape and repeatability of relative landmark positions*

A revision of ISO 20685:2010 is under preparation; when revised, it will become

— *Part 1: Evaluation protocol for body dimensions extracted from 3-D body scans*

Introduction

Anthropometric measures are key to many International Standards. These measures can be gathered using a variety of instruments. An instrument with relatively new application to anthropometry is a three-dimensional (3-D) scanner. 3-D scanners generate a 3-D point cloud of the outside of the human body that can be used in a number of situations including clothing and automotive design, engineering and medical applications. Recently, digital human models are created from a 3-D point cloud, and used for various applications related to technological design process. Quality control of scan-extracted anthropometric data is important since required quality can differ according to applications.

There are a number of different fundamental technologies that underlie commercially available systems. These include stereophotogrammetry, ultrasound and light (laser light, white light and infrared), among others. Further, the software that is available to process data from the scan varies in its methods. Additionally, methods to extract landmark positions are different between commercially available systems. In some systems, anthropometrists decide landmark locations and paste marker stickers, and scanner system calculate locations of marker stickers and identify their names, while in other systems, landmark positions are automatically calculated from the surface shape data. Quality of landmark locations have significant effects on the quality of scan-extracted 1-D measurements as well as digital human models created based on these landmarks.

As a result of differences in fundamental technology, hardware and software, the quality of body surface shape and landmark locations from several different systems can be different for the same individual. Since 3-D scanning can be used to gather these data, it was important to develop an International Standard that allows users of such systems as well as users of scan-extracted measurements to judge whether the 3-D system is adequate for these needs.

The intent of this part of ISO 20685 is to ensure the quality control process of body scanners, especially that of surface shape and locations of landmarks as specified by ISO 7250-1.