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STN	**Ergonómia Metódy trojrozmerného skenovania pre medzinárodne kompatibilné antropometrické databázy Časť 1: Hodnotiaci protokol pre rozmery tela extrahované z trojrozmerného skenovania (ISO 20685-1: 2018)**	**STN EN ISO 20685-1** 83 3519

3-D scanning methodologies for internationally compatible anthropometric databases - Part 1: Evaluation protocol for body dimensions extracted from 3-D body scans (ISO 20685-1:2018)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 05/19

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3-D scanning methodologies for internationally compatible anthropometric databases - Part 1: Evaluation protocol for body dimensions extracted from 3-D body scans (ISO 20685-1:2018)

Méthodologies d'exploration tridimensionnelles pour les bases de données anthropométriques compatibles au plan international - Partie 1: Protocole d'évaluation des dimensions corporelles obtenues à l'aide de scanners 3D (ISO 20685-1:2018)

Ergonomie - 3D-Scanverfahren für international kompatible anthropometrische Datenbanken - Teil 1: Prüfprotokoll für aus 3D-Scans extrahierte Körpermaße (ISO 20685-1:2018)

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European foreword

This document (EN ISO 20685-1:2018) has been prepared by Technical Committee ISO/TC 159 "Ergonomics" in collaboration with 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of an identical text or by endorsement, at the latest by June 2019, and conflicting national standards shall be withdrawn at the latest by June 2019.

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

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The text of ISO 20685-1:2018 has been approved by CEN as EN ISO 20685-1:2018 without any modification.

INTERNATIONAL STANDARD

ISO 20685-1

First edition
2018-10

3-D scanning methodologies for internationally compatible anthropometric databases —

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

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

Partie 1: Protocole d'évaluation des dimensions corporelles obtenues à l'aide de scanners 3D

Reference number
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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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 159, *Ergonomics*, Subcommittee SC 3, *Anthropometry and biomechanics*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

This first edition cancels and replaces ISO 20685:2010.

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 for a number of purposes, such as clothing and automotive design, engineering and medical applications. There are currently no standardized methods for using 3-D point clouds in the design process. As a result, many users extract one-dimensional (1-D) data from 3-D point clouds. This document concerns the application of 3-D scanners to the collection of one-dimensional anthropometric data for use in design.

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). Further, the software that is available to process data from the scan varies in its methods. Additionally, software to extract dimensions similar to traditional dimensions varies markedly in features and capabilities.

As a result of differences in fundamental technology, hardware and software, extracted measurements from several different systems can be markedly different for the same individual.[1] Since 3-D scanning can be used to gather measurements, such as lengths and circumferences, it was important to develop an International Standard that allows users of such systems to judge whether the 3-D system is adequate for these needs.

The intent of this document is to ensure comparability of body measurements as specified in ISO 7250-1 but measured with the aid of 3-D body scanners rather than with traditional anthropometric instruments such as tape measures and callipers. It is further intended that conformance with this document will make any data extracted from scans suitable for inclusion in international databases such as those described in ISO 15535.[2]

INTERNATIONAL STANDARD **ISO 20685-1:2018(E)**

3-D scanning methodologies for internationally compatible anthropometric databases —

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

1 Scope

This document addresses protocols for the use of 3-D surface-scanning systems in the acquisition of human body shape data and measurements defined in ISO 7250-1 that can be extracted from 3-D scans.

While mainly concerned with whole-body scanners, it is also applicable to body-segment scanners (head scanners, hand scanners, foot scanners).

It does not apply to instruments that measure the location and/or motion of individual landmarks.

The intended audience is those who use 3-D scanners to create 1-D anthropometric databases and the users of 1-D anthropometric data from 3-D scanners. Although not necessarily aimed at the designers and manufacturers of those systems, scanner designers and manufacturers can find it useful in meeting the needs of clients who build and use 1-D anthropometric databases.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 7250-1, *Basic human body measurements for technological design — Part 1: Body measurement definitions and landmarks*

