INTERNATIONAL STANDARD

ISO 18825-1

First edition
2016-07-01

Clothing — Digital fittings —

Part 1: Vocabulary and terminology used for the virtual human body

Habillement — Essayage virtuel —

Partie 1: Vocabulaire et terminologie utilisés pour le corps humain virtuel

Reference number
ISO 18825-1:2016(E)

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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.

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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The committee responsible for this document is ISO/TC 133, *Clothing sizing systems — size designation, size measurement methods and digital fittings*.

ISO 18825 consists of the following parts, under the general title *Clothing — Digital fittings*:

— *Part 1: Vocabulary and terminology used for the virtual human body*

— *Part 2: Vocabulary and terminology used for attributes of the virtual human body*

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Introduction

The virtual human model exists in various formats in the virtual world and is applied in many different industrial sectors. The virtual human body used in the fashion field reflects the attributes of different areas of the human body based on physical measurements and shape characteristics.

Various types of virtual human body-based IT-fashion convergence technology are being attempted today, according to rapid development of the vast online fashion market, including the internet, mobile market, smart TVs, and virtual fittings at shops and stores. Meanwhile, the increased demand of mass customized and made-to-measure garments these days encourages efforts to innovate the traditional process of planning, production and sales. The use of digital technology in this new ubiquitous environment of the international apparel industry is leading to use of three-dimensional information on consumers and digital human bodies that reflect somatotype characteristics, and consumers can now go online anytime, anywhere, to try on clothes, evaluate the style and fit, and place orders. Despite such advances, there is a lack of an International Standard related to the virtual human body.

Therefore, this part of ISO 18825 is the first in a series of International Standards that deal with the virtual human body, a necessary component of the 3D virtual garment system used in the apparel industry. The main goals of this International Standard are to define a virtual human body to be used to improve online communication and reliability of fashion products sold online and in-store through visual confirmation of size, shape, fit and design. This International Standard will establish a single index and reference for all virtual garment programs that are currenlty using various, confusing terminology.

This part of ISO 18825 specifies vocabulary, terminology and definitions related to digital fitting, such as virtual human body shapes, composition and attributes, and thus supports online and in-store consumers, fashion designers, product developers, technologists, manufacturers and retailers who have an interest in the style and fit of clothes. Developers will be able to use unified vocabulary and terminology when they devise virtual garment systems. Online consumers, fashion designers, manufacturers and sellers using virtual garment systems will be able to make use of the vocabulary and terminology regarding virtual body dimensions. It is therefore expected to improve convenience for consumers, improve efficiency in clothing manufacturing and contribute to a decrease in the return rate of clothes purchased online.

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Clothing — Digital fittings —

Part 1: Vocabulary and terminology used for the virtual human body

1 Scope

This part of ISO 18825 covers vocabulary and terminology used for the virtual human body in the virtual garment system used as a main tool in various fields of clothing application. This part of ISO 18825 is applicable to all stages of online clothing communication and business, including design, manufacture, order, sales, distribution and customer management.

2 Terms and definitions

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

2.1 General terms

2.1.1
virtual human model
three-dimensional model in digital format

2.1.1.1
parametric human body
virtual human model with changeable parameters such as size and shape, etc.

Note 1 to entry: Parametric human body is created by modifying the parameters of the exemplar model imported from the 3D model library. The exemplar models differ with countries as they are based on a database. Therefore, a parametric human body can be made on the basis of height variations, BMI (body mass index) and so on (see Figure A.1).

Note 2 to entry: The parameters of the parametric human body are presented in the parametric human body software. The parameters of the parametric human body can be added depending on the purpose of users.

Note 3 to entry: See Figure 1.

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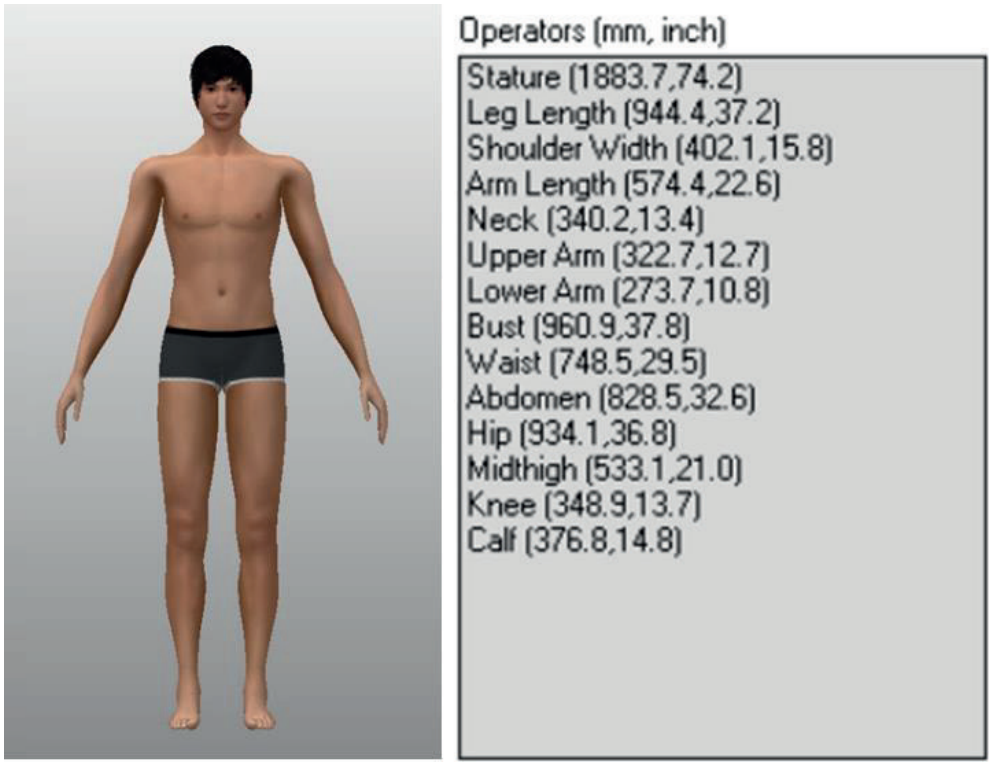


Figure 1 — Examples of parameters of a male adult body

2.1.1.2
virtual human body
virtual human model for digital fitting in the apparel industry, including information such as size, shape, cross section, body texture and skeletal structure

Note 1 to entry: Also called "fashion avatar". In computing, an avatar is the graphical representation of the user or the user's alter ego or character.

Note 2 to entry: The virtual human body is classified into two key types — virtual clone (virtual shape) and virtual twin (virtual size); see Table B.1.

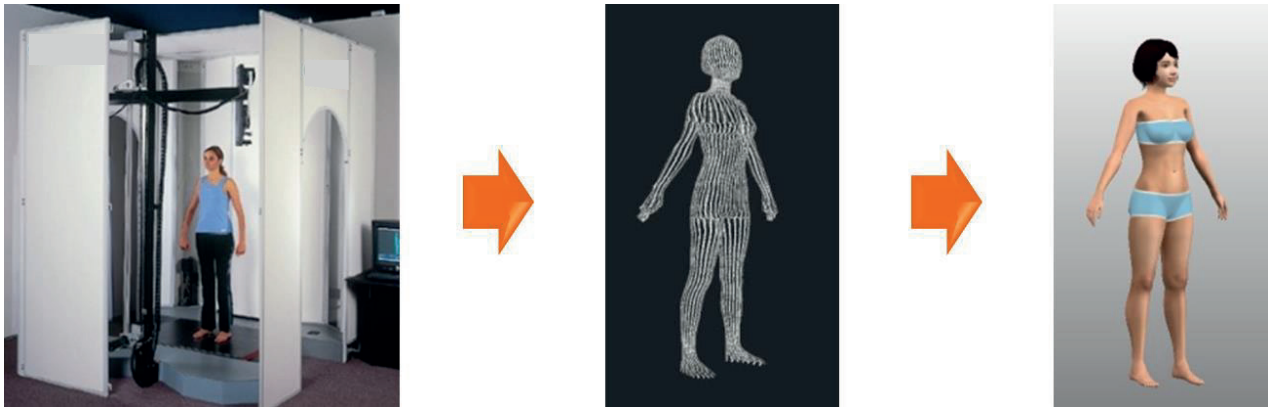
2.1.1.2.1
virtual clone
virtual shape
virtual human body that is created by forming three-dimensional surface data from a 3D body scanned point cloud (see ISO 20685:2010, 3.21), using surface modeling processes, including noise elimination, hole-filling and mesh generation

Note 1 to entry: It is essential that a user get scanned first to create a virtual clone (virtual shape).

Note 2 to entry: The virtual clone (virtual shape) is identical to the body shape of the user.

Note 3 to entry: See Figure 2.

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a) 3D scanning b) 3D scanned point cloud c) Virtual clone

Figure 2 — Process of creating a virtual clone (virtual shape)

2.1.1.2.2
virtual twin
virtual size
morphed virtual human body that is applied body dimensions acquired either through manual or automatic measurements

Note 1 to entry: The virtual twin (virtual size) is a *parametric human body* (2.1.1.1) as it can be altered with parameters.

Note 2 to entry: The virtual twin (virtual size) is not identical to the user; but is a close approximation that can be altered by entering parameters retrieved from a population database.

Note 3 to entry: See Figure 3.



a) Body measurements b) 3D model library c) Virtual twin

NOTE Body measurements are necessary to create a virtual twin. The actual text in a) is not important.

Figure 3 — Process of creating a virtual twin (virtual size)

2.2 Terms relating to basic composition and attributes

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