

Management and Industrial Engineering

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# New Perspectives on Applied Industrial Tools and Techniques

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# Chapter 18

## Methodology to Determine Product Dimensions Based on User Anthropometric Data

Juan Luis Hernández-Arellano, Julián Israel Aguilar-Duque  
and Karla Gabriela Gómez-Bull

**Abstract** The determination of product dimensions is usually a complicated task developed during the design process. Typically, product dimensions are developed using wrong percentiles and wrong anthropometric data, i.e., designers use data from other populations. This chapter proposes a method for dimensioning products based on user–product interactions and the user’s anthropometric dimensions. The methodology includes 7 steps: (1) determine the objective of the product, (2) identify the interactions user–product, (3) assign a name to the product dimensions, (4) identify the user dimensions to design the product, (5) determine the percentiles and Z-scores for each product dimension, (6) calculate the percentiles, (7) determine the dimensions of the product. In order to exemplify the proposed method, two examples were developed using the methodology. The first was related with the design of a conventional bench, and the second was related with design of an adjustable school desk. After applying the proposed method, both products were successfully dimensioned.

**Keywords** Product dimension · Anthropometry · Methodology

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