



BSI Standards Publication

Hand hole design principles and test methods for handheld packages

National foreword

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Hand hole design principles and test methods for handheld packages

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préhension pour emballages portatifs*

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Foreword

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This document was prepared by Technical Committee ISO/TC 122, *Packaging*, Subcommittee SC 3 *Performance requirements and tests for means of packaging, packages and unit loads*.

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Introduction

The product categories that logistics workers handle manually are diverse, including various electrical and electronic products, household goods, food and beverage products, etc. One of the major ergonomic safety issues that arise is musculoskeletal disorders and spinal injuries caused by repetitive vertical movements, movements, and momentary loads.

According to Reference [11] most market staff are women in their 40's and 50's. They pick up and put down boxes an average of 149 times a day, and 85,3 % of them suffer from musculoskeletal injuries such as pain in the shoulders, backs, and knees. The study concluded that even just adding hand holes to boxes would reduce the load by 10 %.

Although hand holes in boxes cannot completely eliminate all risks of accidents, they can enhance safety and efficiency by making logistics and distribution activities, including loading, unloading, warehousing, sorting, and transportation, more convenient and less dangerous to handlers, thus helping to prevent musculoskeletal disorders. Transport packaging designed appropriately for the size and/or weight of the product, the durability of the package material, etc., reduces the risk of workers using excessive lifting forces. Poor design can lead to product damage or worker injury.

This document provides hand hole design criteria and test methods for handheld packages to provide a safer working environment for workers who lift or move boxes. Some criteria and test methods in this document are based on ASTM D6804, with some modifications to the design requirements and test methods to ensure the usability of this document.

