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Ameublement - Circularité - Exigences et méthodes d'évaluation pour le démontage/remontage

Möbel - Zirkularität - Anforderungen und Bewertungsmethoden für die Demontage/Remontage

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (prEN 17902:2022) has been prepared by Technical Committee CEN/TC 207 "Furniture", the secretariat of which is held by UNI.

This document is currently submitted to the CEN Enquiry.

Introduction

This document aims to support the furniture industry in aligning its product (3.4) offer and development processes with the goals of the circular economy. The primary goal of the circular economy is to develop long lasting products and to enable the extension of the product lifespan through methods such as reuse, repair, refurbishment, remanufacturing, thus maintaining their usability for as long as possible and reducing the consumption of resources by recycling the materials used.

The ability for a product to be disassembled and reassembled is key for extending the life of a product.

Careful consideration of circular product design principles during the development process plays a key role in enabling a product to be reused, repaired, refurbished or re-manufactured. Considering product reuse, parts' capability and availability, for example, can increase product lifespan and material efficiency through a structured methodology. Such methodology includes identification and implementation of criteria for the appropriate assessment of product disassembly (3.1) and reassembly operations.

Giving manufacturers the tools to incorporate such methodology with criteria suitable to the product, and its end use, into the early stages of a product development process is one of the main objectives of this document.

It should be noted that there can be differences concerning the appropriateness and assessment of some criteria when considering end use of some furniture such as domestic use, use by vulnerable groups or commercial use. Similarly, this applies in cases where, for safety reasons, the ability to disassemble and reassemble the product applies to groups of users and their skills sets as defined by the manufacturer.

The safety and performance of most furniture can be aided by the use of suitable performance standards produced within the technical committee, CEN/TC 207 - Furniture.

As noted, however, some types of furniture may not be suitable for dis-/reassembly by the end user, such as upholstered furniture, which may need a trained professional to reupholster a product, or motorized furniture which may pose serious safety risk during dis-/reassembly process. Factors such as these should not mean that a product is less ‘circular’ than another but should allow the manufacturer the ability to minimize these issues.

This document offers general guidance on the criteria that should be considered for assessing the ability to disassemble and reassemble furniture in relation to supporting the implementation of different circular economy strategies. The procedure can be used to compare individual parts or whole pieces of furniture.

Clause 4 describes the respective criteria and how they may be used to assess a product.

Clause 5 describes the requirements for the condition of a product after the dis-/reassembly process, and also the requirements for the moveability of a product.

Annex A and Annex C contain a methodology for assessment dis-/reassembly by means of an index and a methodology for determining relevant parts that are important for extending the lifespan of a product. Furthermore, Annex A gives examples of scoring for the classes linked to the criteria in Clause 4 that can be used to assess the dis/re-assemble ability of a product.

The indicators for dis-/reassembly are specified in Annex B.

1 Scope

This document provides guidance to furniture manufacturers on the criteria to be considered in the design of a product in order to maximize the dis-/reassembly capability, and thus extend the lifespan of the product or its parts.

It does not contain requirements for different types of furniture, or their associated end use, but does offer a methodology that can be used to assess different designs, materials or construction methods when designing a product.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
disassembly
process whereby a product (3.4) is taken apart in such a way that it could subsequently be reassembled and made operational

[SOURCE: EN 45553:2020]

3.2
disassembly depth
number of disassembly steps required to remove a relevant part (3.6) from a product

3.3
disassembly step
operation that ends with the removal of a part (3.5)

3.4
product
physical-based object designed or utilized as furniture in domestic, office, public, outdoor areas, educational and other institutions

3.5
part
sub-unit of a product (3.4)

[SOURCE: EN 45558:2019]

3.6
relevant part
part (3.5) or parts of a product that have been identified to be disassembled and re-assembled to support the relevant circular strategy

4 Criteria

4.1 General

The following criteria characterize the disassembly (3.1) and reassembly capability of a piece of furniture.

Examples of different classes / levels of competency are given in the criteria requirements under Clause 4, however, all classes and preference of order may not be applicable for all products.

4.2 Human resources/effort

4.2.1 Skill level

The process requires certain technical skills from the person carrying out the dis-/reassembly. Classes of criteria in Table 1 for technical skills include the ability to handle the tools and safely manage any risk to the product (3.4) and relevant parts, the environment and the user.

Table 1 — Classes for skill level

Class	Description
A	**Layman**, without specific experience or related qualifications
B	**Professional**, instructed in furniture handling without specific authorization by manufacturer
C	**Specialist**, technical engineer from manufacturer or authorized by manufacturer with specific training and experience.

4.2.2 Number of operators

Classes of criteria in Table 2 include number of persons needed to disassemble the relevant part (3.6).

Table 2 — Classes for number of operators

Class	Description
A	1 person
B	2 persons
C	> 2 persons

4.2.3 Handle-ability -weight

Classes of criteria in Table 3 include the weight in relation to the manageability of parts and are defined by the heaviest part (mass in kg) that is handled during the dis-/reassembly process. The determination of the heaviest part includes the relevant part (3.6).