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Technical product documentation — Design for manufacturing, assembling, disassembling and end-of-life processing —

Part 2: Vocabulary

*Conception et documentation pour la fabrication, le montage, le
démontage et le traitement en fin de vie (MADE) —*

Partie 2: Vocabulaire

ISO/FDIS 8887-2

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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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This document was prepared by Technical Committee ISO/TC 10, *Technical product documentation*.

A list of all parts in the ISO 8887 series can be found on the ISO website.

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.

Introduction

In recent years, policymakers throughout the world have focused their attention on ways to reduce environmental impact. In many countries this has led to, or will soon lead to, new incentives with the result that end-of-life processes now need to be considered at the design stage. Consequently, there is an increasing focus on not only the production of a product but also what is to be done when the user has finished with it. Thus, the ISO 8887 series includes consideration of disassembling the product and the treatment of the components through processes such as remanufacturing, recycling, reusing through multiple life cycles or disposing.

The ISO 8887 series aims to specify the documentation requirements for integrating these environmental aspects into the design and development of products. It relates to the following four stages:

with regard to production:

- the manufacturing of the components;
- the assembling of the components to produce a product;

with regard to end of use:

- the disassembling into components;
- the end-of-life processing of these components.

The ISO 8887 series addresses the design task, irrespective of whether the designer works for a manufacturer or a design company or is freelance. It is applicable to all types of manufactured products.

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Technical product documentation — Design for manufacturing, assembling, disassembling and end-of-life processing —

Part 2: Vocabulary

1 Scope

This document defines terms for design for manufacturing, assembling, disassembling and end-of-life processing.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

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

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

3.1

assembling

assemble

bringing together of *components* (3.6) in a functional relationship

3.2

assembly

<design for MADE> number of components fitted together to perform a specific function

[SOURCE: ISO 10209:2022, 3.1.8, modified — The definition has been adjusted for design for MADE.]

3.3

commercially off-the-shelf

COTS

bought-out standard components available to buy from a catalogue or other generally available source

3.4

brief

design brief

working document which specifies at any point in time the relevant needs and aims, the resources of the client and user, the context of the project and any appropriate design requirements within which all subsequent briefing (when needed) and designing can take place

Note 1 to entry: The term “design brief” is used interchangeably with “brief” in the ISO 8887 series.

3.5
carbon footprint of a product
CFP

sum of greenhouse gas emissions and greenhouse gas removals in a product system, expressed as carbon dioxide equivalents and based on a life-cycle assessment using the single impact category of climate change

[SOURCE: ISO 14050:2020, 3.11.1]

3.6
component

part
constituent part of equipment that cannot be physically divided into smaller parts without losing its character

[SOURCE: ISO 10209:2022, 3.1.15, modified — To include “part” as an admitted term.]

3.7
custom component

component (3.6) made specifically for a *product* (3.47) or related series of products

3.8
hazardous substance
hazardous preparation

substance or preparation that is, under certain conditions, likely to be injurious to health, safety or the environment

Note 1 to entry: The use of such substances is often restricted by law.

3.9
ecodesign

systematic approach that considers environmental aspects in design and development with the aim to reduce adverse environmental impacts throughout the *life cycle* (3.17) of a *product* (3.47)

[SOURCE: ISO 14050:2020, 3.5.22]

3.10
disassembling
disassembly

taking apart of an assembled *product* (3.47) into constituent materials and/or *components* (3.6)

3.11
disposal

any operation which is not recovery even where the operation has, as a secondary consequence, the reclamation of substances or energy

Note 1 to entry: Waste Framework Directive^[1].

3.12
end-of-life

point at which a *product* (3.47) or *component* (3.6) is taken out of the current use stage

3.13
energy recovery

production of useful energy from waste through direct and controlled combustion or gasification

[SOURCE: ISO 15270:2008, 3.11, modified — Definition revised.]

3.14**environmental aspect**

element of an organization's activities or *products* (3.47) that interacts or can interact with the environment

[SOURCE: ISO 14050:2020, 3.2.20]

3.15**environmental impact**

change to the environment, whether adverse or beneficial, including possible consequences, wholly or partially resulting from an organization's *environmental aspects* (3.14)

[SOURCE: ISO 14050:2020, 3.2.22]

3.16**fluff**

fibrous waste, produced where it has the potential to interfere with subsequent operation

Note 1 to entry: Particularly applicable to the automotive industry.

3.17**life cycle**

consecutive and interlinked stages from raw material acquisition or generation from natural resources to final disposal

[SOURCE: ISO 14050:2020, 3.6.1]

3.18**machine assembly****robotic assembly**

assembly carried out by programmed machinery

3.19**maintenance**

activities carried out to keep a *product* (3.47) in its original, useable state within the current *life cycle* (3.17)

Note 1 to entry: This includes planned inspections and replacement of components, as necessary.

3.20**manufacturing**

production of *components* (3.6)

3.21**material reduction**

modification of the design of *components* (3.6) and *assemblies* (3.2) to achieve the same performance using less material

3.22**orientation**

rotational position in space (relative or absolute) a *component* (3.6) has to have in order for some operation or *assembly* (3.2) process to be carried out

3.23**handling**

transporting, moving or manipulating *components* (3.6) and/or *assemblies* (3.2) during the production process

3.24**process, verb**

transform a material, *component* (3.6) or *assembly* (3.2) from one configuration or state to another

3.25

process, noun

<industrial systems> set of interacting operations by which material, energy or information is transformed, transported or stored

3.26

refurbishing

refurbish

refurbishment

reconditioning

recondition

industrial process which returns a used *product* (3.47), or *component* (3.6) to a satisfactory performance level when made available on the market as a used product

Note 1 to entry: The refurbisher by whom the product has been refurbished shall be indicated by a “refurbished by” or by the type plate of the refurbisher.

Note 2 to entry: With respect to refurbishing:

- manufacturing effort involves the replacement of worn or broken components but is generally more extensive than for repair;
- performance after refurbishing is expected to perform its intended role but the overall performance is likely to be inferior to that of the original model;
- any subsequent warranty is generally less than that for a new or remanufactured product but is likely to cover the whole product (unlike repair); refurbished products do not require a warranty equivalent to that of a newly manufactured equivalent.

3.27

recovery

process in which waste material is either treated to release materials in a form where they can be used again or used as fuel in energy recovery

3.28

recycling

recycle

reprocessing a material or *component* (3.6) which has previously been processed for inclusion in a *product* (3.47)

3.29

remanufacturing

remanufacture

industrial process which creates a new *product* (3.47), from used products, or *components* (3.6), which has to be placed on the market

Note 1 to entry: Original manufacturers are not obliged to disclose technical documents to the remanufacturer for the reason of know-how protection.

3.30

renewable

replenishable from natural sources at a rate greater than consumption

Note 1 to entry: This can apply to materials and energy.

3.31

repairing

repair

returning a faulty, worn or broken *product* (3.47) or *component* (3.6) back to a usable state

Note 1 to entry: A repair may use remanufactured or refurbished components.

Note 2 to entry: With respect to repairing: