



BSI Standards Publication

# **Design for manufacture, assembly, disassembly and end-of-life processing (MADE)**

Part 240: Reconditioning

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## Foreword

### Publishing information

This British Standard is published by BSI and came into effect on 31 March 2011. It was prepared by Subcommittee TDW/4/7, *BS 8887 Design for MADE*, under the authority of Technical Committee TDW/4, *Technical product realization*. A list of organizations represented on this committee can be obtained on request to its secretary.

### Relationship with other publications

BS 8887 is published in a number of parts, including:

- *Part 1: General concepts, processes and requirements;*
- *Part 2: Terms and definitions.*

### Information about this document

Documents numbered Part 1 to Part 99 are general MADE standards. Documents numbered Part 100 to Part 199 are related to manufacture and assembly. Documents numbered Part 200 to Part 299 are related to disassembly and end-of-life.

### Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is "shall".

*Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.*

### Contractual and legal considerations

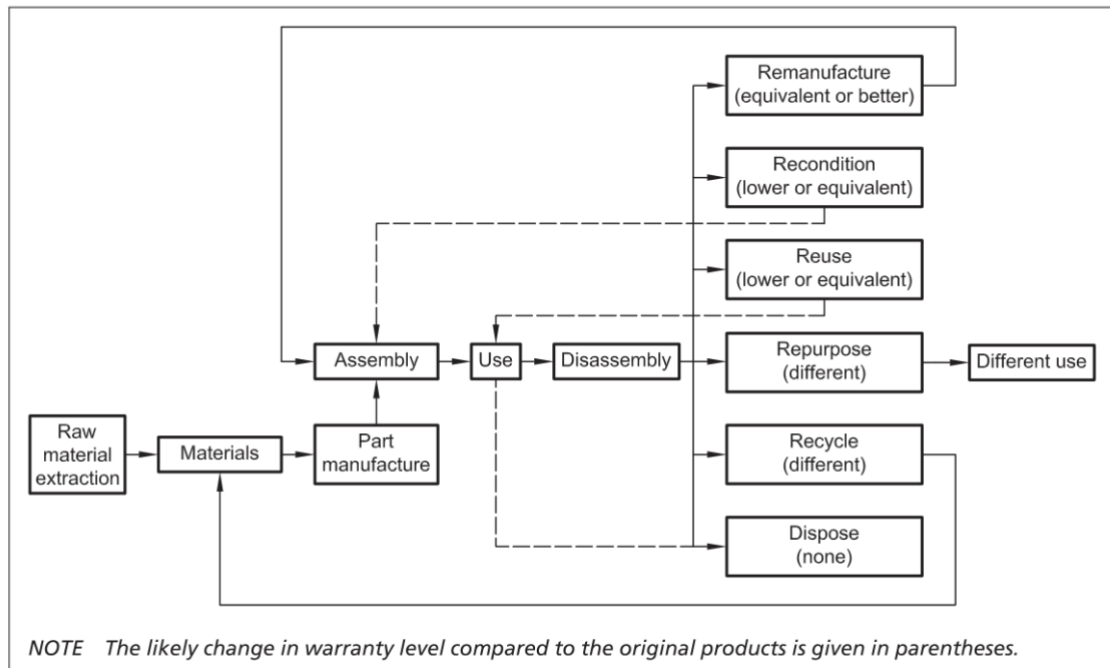
This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

**Compliance with a British Standard cannot confer immunity from legal obligations.**

## 0 Introduction

This part of BS 8887 deals with reconditioning and should be read in conjunction with BS 8887-2 (see also Figure 1).

Figure 1 Product lifecycle



## 1 Scope

This part of BS 8887 specifies requirements for the process of reconditioning, i.e. returning a used product to a satisfactory working condition by rebuilding or repairing major components that are close to failure, even where there are no reported or apparent faults in those components. The reconditioning process can include parts or components to be used in subsequent assembly. This part of BS 8887 is applicable to manufactured products. It is not applicable to:

- certain transient products or consumables (e.g. food, fuel);
- digital media;
- commodity materials (e.g. base chemical substances, sand or minerals).

**NOTE** It should be noted that BS 8887-2 defines recondition and refurbishment as synonymous.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 8887-2, *Design for manufacture, assembly, disassembly and end-of-life processing (MADE) – Part 2: Terms and definitions*

## 3 Terms and definitions

For the purposes of this British Standard, the terms and definitions given in BS 8887-2 and the following apply.

### 3.1 core

component or product retained throughout the reconditioning process

*NOTE 1 Core is generally obtained either as a discrete unit or as a component or subcomponent of a larger product. Acquiring core varies from sector to sector but can include: warranty returned parts, user send-back schemes, collection through servicers, repairers or brokers, removal from larger scrapped products, part exchanges, deposit returns, service contracts and recovery from waste streams. Core can also be obtained from customers who wish to have work performed on their specific product with the expectation of receiving the same product back.*

*NOTE 2 The definition of core is dependent on the state of its assemblies and components, e.g. fixings are not necessarily part of the core.*

### 3.2 product

article manufactured for use, sale or lease

*NOTE This definition solely applies to manufactured products and not the broader definition (including services) as defined in BS ISO 14050:2009, 6.2.*

## 4 The reconditioning process

### 4.1 Collection of technical documents and the specification of intended quality

For reconditioning, technical specifications shall be obtained or produced for the product to enable the reconditioning of the core to a specified working state. These documents shall include details of the intended performance levels of the reconditioned product.

A reconditioned product shall be in a working state. The level of performance of the reconditioned product shall be defined by the reconditioner.

*NOTE 1 After reconditioning the product is expected to perform its intended role but the overall performance is likely to be inferior to that of the original model.*

*NOTE 2 Any subsequent warranty is generally less than new or a remanufactured product but the warranty is likely to cover the whole product (unlike repair); reconditioned products do not require a warranty equivalent to that of a newly manufactured equivalent.*

## 4.2 Collection of core

The core shall be used through at least part of one life cycle. It shall be produced in accordance with the original equipment manufacturer's (OEM's) quality control process and shall have passed this process. The core shall be considered used and eligible for reconditioning when it has:

- been placed on the market;
- spent time in service;
- exceeded its shelf life;
- been damaged after production but prior to sale, e.g. during transit.

## 4.3 Initial inspection

After obtaining the core, an initial inspection shall be performed against defined acceptance criteria to determine if it is suitable for reconditioning.

*NOTE 1 Acceptance criteria can include economic and practical considerations.*

*NOTE 2 Inspection can be performed visually, or by a geometric or performance measurement.*

*NOTE 3 Items which fail the inspection can contain components which are suitable to be reused in other products and warrant removal from the failed product.*

*NOTE 4 Some cleaning might be necessary prior to testing and inspection. This should be performed before inspection to ensure that substandard parts are not passed as fit for purpose.*

## 4.4 Disassembly

The core shall be disassembled into its constituent materials and/or components.

*NOTE The level of disassembly can vary depending on the product and the processes to be used.*

## 4.5 Detailed inspection of components

The constituent components shall be inspected and tested against the technical specifications to determine their suitability for continuing use. Components which are unsuitable shall be removed from the reconditioning process or functionally remediated (see 4.6.1).

*NOTE 1 Inspection can be performed visually, or by a geometric measurement.*

*NOTE 2 A test can include operating the component under normal conditions which can require incorporation into a larger assembly and comparing its output with that defined in the technical specifications in 4.1.*

## 4.6 Remediation of components

### 4.6.1 Functional remediation of components

Remediation shall be performed to ensure that the components meet the technical specifications identified in 4.1. Components which have undergone remediation shall be inspected and tested in accordance with 4.5.



*NOTE Remediation can include cleaning, stripping, repainting and resurfacing. Remediation can also improve the finish of wear surfaces, e.g. by vapour phase deposition or reskimming.*

#### **4.6.2 Cosmetic remediation of components**

Cosmetic parts, such as cases and surface panels, shall be treated to ensure that the finish of the reconditioned product is as expected from a customer's perspective or as defined in the technical specification in **4.1**.

#### **4.7 Replacement**

Components which, even after functional remediation, do not perform as defined in the technical specification shall be replaced.

#### **4.8 Reassembly**

Any reassembly shall be performed, and any consumables shall be replaced or replenished to meet the technical specification.

#### **4.9 Testing**

##### **4.9.1 Validating the reconditioned product**

The product shall undergo working tests to ensure that it performs as described in the technical documents defined in **4.1** correctly. These test procedures and results shall be recorded for auditing purposes.

##### **4.10 Issue of a warranty and consumer information**

The reconditioned product shall be covered by a warranty. Information regarding the expected performance of the product, as defined in **4.1**, shall be clearly stated and freely available to the purchaser of the product.

## **5 Identification and marking**

If desirable a reconditioned product conforming to this standard shall be permanently, legibly marked with, or include documentation that contains, one or more of the following.

- The designation and year of this standard, i.e. BS 8887-240:2011.<sup>1)</sup>
- A unique identifier for the product (e.g. the product name and/or type).
- The name of the reconditioner.

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<sup>1)</sup> Marking BS 8887-240:2011 on or in relation to a product represents a manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is solely the claimant's responsibility. Such a declaration is not to be confused with third-party certification of conformity.



## **Bibliography**

### **Standards publications**

For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS ISO 14050:2009, *Environmental management – Vocabulary*