

BS 8887-220:2010



BSI Standards Publication

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

Part 220: The process of
remanufacture – Specification

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ISBN 978 0 580 68308 4

ICS 01.040.01, 01.100.01

The following BSI references relate to the work on this standard:

Committee reference TDW/4

Draft for comment 09/30205838 DC

Publication history

First published March 2010

Amendments issued since publication

Date	Text affected
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Summary of pages

This document comprises a front cover, an inside front cover, pages i to ii, pages 1 to 6, an inside back cover and a back cover.

Foreword

Publishing information

This British Standard is published by BSI and came into effect on 31 March 2010. 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

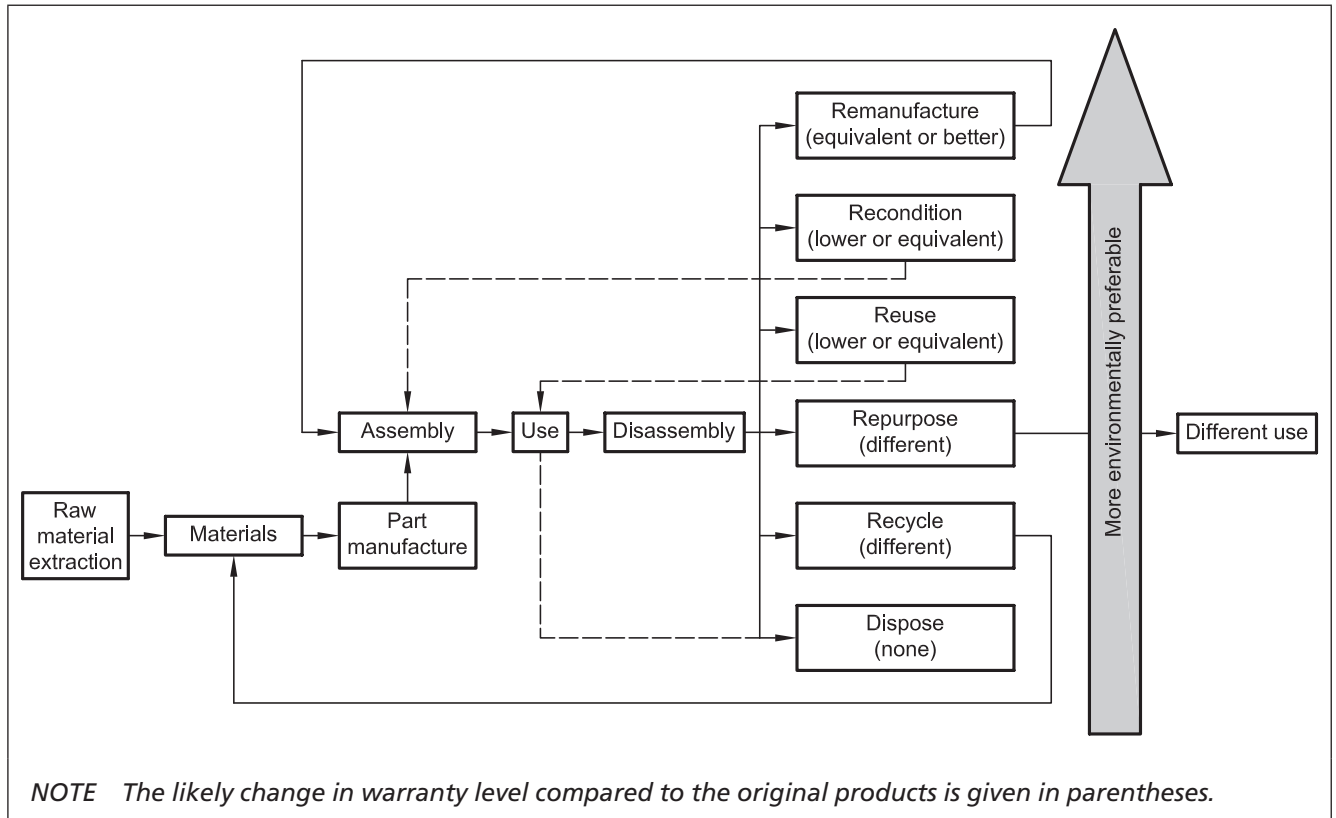
This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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

0 Introduction

This part of BS 8887 deals with remanufacture and should be read in conjunction with BS 8887-2 as well as Figure 1.

Figure 1 Product lifecycle



1 Scope

This part of BS 8887 specifies requirements for the process of remanufacture and the steps required to change a used product into an as-new product, with at least equivalent performance and warranty of a comparable new replacement product. The remanufacturing 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; or
- commodity materials (e.g. base chemical substances, sand or minerals).

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 8887-2:2009: *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 remanufacturing 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 condition 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, e.g. BS ISO 14050:2009, 6.2.

4 The remanufacturing process

4.1 Collection of technical documents

For remanufacture, technical specifications shall be obtained or produced for the product to substantiate the warranty and the equivalent as-new performance.

NOTE Where possible, technical specifications should be produced from the original specifications. Where these are not available, technical specifications can be derived from a justifiable reverse engineering process or from a company or industry standard.

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 remanufacture when it has:

- been placed on the market;
- spent time in service;
- exceeded its shelf life; or
- 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 remanufacture.

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 should be considered for refurbishment or repair, or disposed of in an environmentally conscious manner. Failed core can contain components which are suitable for reuse 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 to determine their suitability for continuing use. Components which are unsuitable shall be removed from the remanufacture process or functionally remediated (see 4.6.1).

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

4.6 Remediation of components

4.6.1 Functional remediation of components

Remediation shall be performed to ensure that the components meet specified as-new performance criteria. Components which have undergone significant remediation shall be inspected in accordance with 4.5 and, where applicable, undergo a functional test to ensure that they are of an as-new quality.

NOTE 1 A functional test can include operating the component under normal conditions which can require incorporation into a larger assembly and comparing its output with that of a new component.

NOTE 2 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 remanufactured product, from a customer's perspective, is considered new. Both functional and cosmetic components shall be as-new, as defined in BS 8887-2:2009, 3.1.

4.7 Replacement

Components which, even after functional remediation, do not perform as new shall be replaced with as-new components. Original performance and lifetime specifications shall be used to identify such parts.

4.8 Reassembly

Any reassembly shall be performed, and any consumables shall be replaced or replenished with items that are new or as-new.

4.9 Testing

4.9.1 Validating the remanufacturing process

The product shall undergo full working tests, as described in the technical documents, defined in 4.1, to check that the performance of the product is at least equal to that of a new product. These test procedures and results shall be recorded for auditing purposes.

4.9.2 Validating the remanufactured product

The remanufactured product or batches of product shall undergo an appropriate level of testing consistent with recognized quality procedures.

4.10 Issue of a warranty

The remanufactured product shall be covered by a warranty that matches or exceeds that of a new product.

5 Identification and marking

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

- a) the designation and year of this standard, i.e. BS 8887-220:2010¹⁾;
- b) a unique identifier for the product (e.g. the product name and/or type);
- c) the name of the remanufacturer.

¹⁾ Marking BS 8887-220:2010 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

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

BS 8887-1, *Design for manufacture, assembly, disassembly and end-of-life processing (MADE): Part 1 – General concepts, processes and requirements*²⁾

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

²⁾ Referred to in the foreword only.

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