Mechanical products — Methodology for reduction of environmental impacts in product design and development

National foreword

This British Standard is the UK implementation of EN 16524:2020. It supersedes PD CEN/TS 16524:2013, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee TPR/1/7, Technical Product Realization - BS 8887 Design for MADE.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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

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English Version

Mechanical products - Methodology for reduction of environmental impacts in product design and development

Produits mécaniques - Méthodologie de réduction des impacts environnementaux à la conception et au développement des produits

Mechanische Produkte - Methodik zur Verminderung der Umweltauswirkungen bei Produktgestaltung und Entwicklung

This European Standard was approved by CEN on 24 August 2020.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 16524:2020) has been prepared by Technical Committee CEN/TC 406 “Mechanical products - Ecodesign methodology”, the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2021, and conflicting national standards shall be withdrawn at the latest by May 2021.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes CEN/TS 16524:2013.

The main changes compared to CEN/TS 16524:2013 are as follows:

— the document is to be converted into a European standard;

— the link with EN ISO 14001 has been strengthened for users willing to comply with that international standard;

— Clause 5 has been added to detail the preparatory step before implementing the methodology, which consists of an overview of the framework and the methodology;

— the life cycle analysis (LCA) is only referred to as an example of existing data on the product, when available; and

— the purpose of the Annex F on the possible use of life cycle assessment for determining the score of each environmental aspect has been clarified.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

Ecodesign methodologies can be divided into three types, depending on whether their purpose is the environmental assessment of products, the environmental improvement of products or to enable the two phases to be carried out during the same ecodesign project.

The environmental assessment phase of products in the ecodesign process can be an impediment for companies (owing to need for expertise, time and resources). Therefore, the methodology discussed in this document has been developed with the aim of helping designers to identify ways of improving the environmental performance of a product without carrying out a complete environmental assessment of the product (in terms of LCA).

Therefore, the approach consists for the company in restricting the scope of analysis to the characteristics defined by the constraints of the product, which takes into account the technical factors of the product, economic constraints, the practices of a company and its development strategies. Secondly, it consists of exploring the potential for environmental improvement within this restricted field.

This document is intended to give companies, in particular small and medium enterprises (SMEs), a pragmatic methodology to consider environmental aspects during their product design. It allows them to:

— Identify the environmental aspects of a product, including but not limited to energy aspects;

— Reduce the environmental impact of a product, taking into account capabilities of the company;

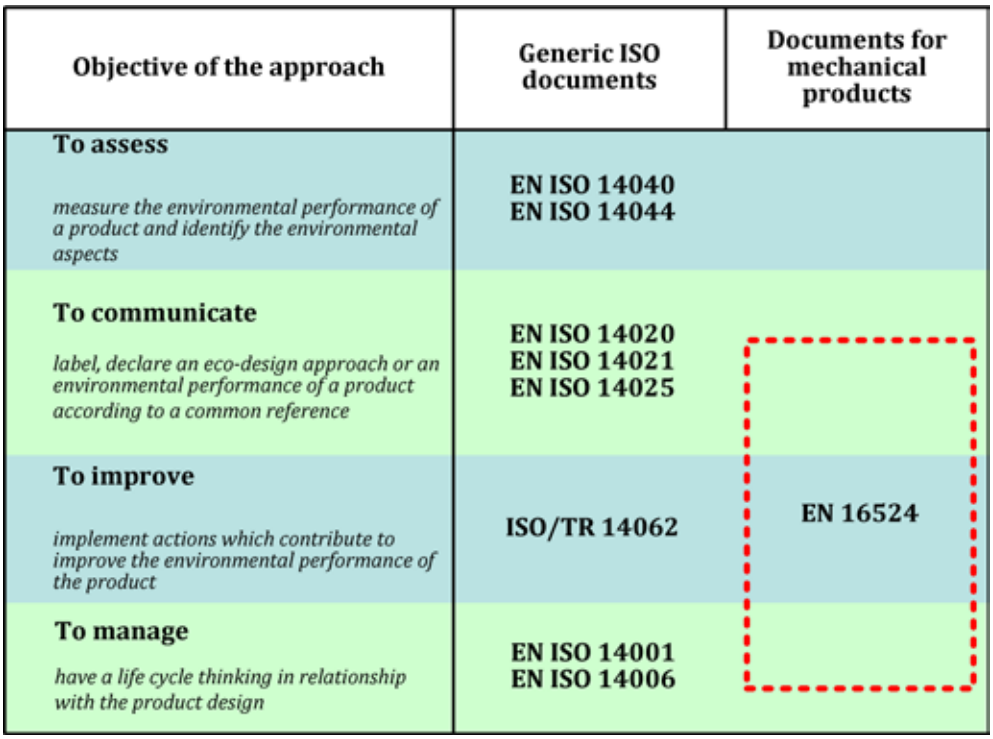
— Inform clients and public authorities about the environmental improvement approach on a mechanical product with this methodology (environmental claim).

The reduction of the environmental impact implies that the intended performance of the product (fitness for use, durability, etc.) is maintained.

To implement this methodology, the company staff will have sufficient knowledge and expertise in environmental issues; if not, external expertise can be addressed. When applying this methodology, management of the company can enter a learning process with the aim of defining and/or confirming its strategy for ecodesign, modifying its design process to enable the environmental issue to be taken into account, and creating new knowledge.

The aim of this document is not to measure the actual environmental performance of a product, nor to conduct a full life cycle assessment according to EN ISO 14040. Nevertheless, suitable data coming from more detailed studies e.g. LCA, carbon footprint, etc. can be used as inputs for this methodology (see an example in Annex F).

Figure 1 shows the relationship between this document and existing documents from ISO.



NOTE More specific methodologies can exist for specific mechanical products.

Figure 1 — Relationship between this document and existing ISO documents

This document can assist the company to comply with the requirement of EN ISO 14001 and the recommendations of EN ISO 14006, to establish, implement and maintain a procedure to identify the environmental aspects of its products.

This document is not intended to support or to demonstrate compliance with any specific implementing measures of the Framework Directive 2009/125/EC (Energy-related Products). It can provide methodologies for identifying the more relevant environmental aspects in order to propose alternative design options to improve the environmental performance of the product.

This document is not intended for calculation of environmental footprint.

1 Scope

This document describes a methodology for reducing the overall environmental impact through product design and development that is tailored to mechanical products as defined in 3.1.

This methodology is particularly well suited to the redesign of an existing product; it can also be applied for the design of a new product provided the necessary assumptions regarding a (virtual) reference product are taken.

It addresses companies which have decided to integrate an ecodesign approach to optimize environmental impacts within the product life cycle, in relation to the other product aspects, such as functionality, quality, costs, etc.

It also helps to meet some requirements of EN ISO 14001:2015 on the integration of environmental aspects in the design of products.

NOTE 1 This document targets persons who are directly involved in the design and development of mechanical products, as well as managers responsible for defining corporate policies, and decision-makers. The proposed methodology is intended to kick-start ecodesign initiatives within companies as part of a continuous improvement approach.

This document also includes a template that companies can use as part of the communication on their environmental approach.

This document is neither intended nor suitable to compare products (even similar) of different suppliers.

This document is neither intended nor suitable for product certification purposes.

NOTE 2 An example for the implementation of the methodology is given in Annex D; the background of the algorithm used for this methodology is explained in Annex E.

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 http://www.electropedia.org/

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

3.1
mechanical product
product manufactured by companies from mechanical engineering and metalworking industry

EXAMPLE Mechanical products such as capital goods (machinery, production systems, components), tools, household goods, optical parts, measuring instruments.

3.2
reference product
existing product of the company to be re-designed, with the same intended use

Note 1 to entry: A similar product existing on the market, or the Technical Specification of a product can also be used as a reference.