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Ergonomics methods - Part 2: A methodology for work analysis to support design

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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English Version

Ergonomics methods - Part 2: A methodology for work analysis to support design

Ergonomie - Partie 2: Méthodologie d'analyse du travail à l'appui de la conception

Verfahren der Ergonomie - Teil 2: Eine Methodologie für die Arbeitsanalyse zur Unterstützung von Entwicklung und Design

This European Standard was approved by CEN on 23 January 2016.

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Contents

Page

European foreword

This document (EN 16710-2:2016) has been prepared by Technical Committee CEN/TC 122 “Ergonomics”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by September 2016, and conflicting national standards shall be withdrawn at the latest by September 2016.

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

EN 16710 consists of the following parts under the general title *Ergonomics methods*:

— *Part 1: Feedback method - A method to understand how end users perform their work with machines* (Technical Report)

— *Part 2: A methodology for work analysis to support design*

These present independent methods that can be used to support the implementation of ergonomics principles, for example as advocated in EN ISO 12100 and the EN 614 series.

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

Introduction

The ergonomic design approach involves considering human capabilities, skills, limitations and needs. It is developed on the basis of a decision process, which calls upon not only scientific and technical knowledge data provided by existing standards but also expression of the “know-how” capitalised by the intended user population. Know-how and other knowledge data provided by standards can only become meaningful when based on preliminary analysis of real-work.

Ergonomics design focuses on the actual activity of operators. The methodology described in this European Standard therefore increases the effectiveness and efficiency of the machinery or system being designed; improves human working conditions; and reduces adverse effects on health, safety and performance.

This methodology can lead to one or more suitable solutions embracing situations to be confronted by future users. Applying this will raise productivity, improve work quality, reduce technical support, maintenance and training needs, and will enhance user/operator satisfaction.

Application of this methodology will be most effective when management is closely involved (adoption, communication, etc.).

Extensive ergonomics knowledge exists in relation to organizing and establishing an efficient design process. Applying this knowledge, this present European Standard structures a user-based approach and proposes corresponding requirements for project managers. This approach complements existing design methods and requires reference to ergonomists.

This process concerns both established, as described by EN ISO 12100, and emergent risks and their association with the independent evolution of any system, user variability and conditions of equipment usage.

In this respect, the methodology for work analysis presented in this document is based on the resultant design being at least partly determined by anticipated future developments, especially those indicated by the client.

This is a shared procedure, in which the client provides specifications detailing the knowledge helpful to a design suited to the needs and expectations of users. Examples of the contribution of an ergonomics design approach to preparing specifications are included in informative Annex A.

Design based on an ergonomics process is necessary to meet any “performance obligation” (i.e. obligation of result).

This European Standard complements knowledge generated by work activity analysis to enhance the quality of references and other solutions validated within a participative framework. This is indeed the case when a compromise solution cannot be found in relation to a specific point because the underlying knowledge cannot be validated. This European Standard facilitates orientation towards a shared final decision.

1 Scope

This European Standard describes a procedure for analysing human activity in relation to specifying and refining the human component in the design or redesign of machinery and work systems.

NOTE 1 The ergonomics methodology described in this European Standard could also be applied to the design or redesign of products and non-work systems.

This European Standard is intended to assist project leaders in implementing human and physical resources, methods and schedules as well as in preparing the documents necessary to meeting related requirements.

The ergonomics methodology described can be applied to all different stages in design projects from the earliest concept to the final “prototype” or “mock-up”, whatever the industrial field or sector.

The objective of this European Standard is to achieve a solution that takes into account as many situations as possible which all users - including operators, maintenance staff and installers, may encounter. This will ultimately allow improved usability of the machinery and more robust technical solutions, combined with significantly greater system resilience, user autonomy and accessibility.

NOTE 2 Examples of the application of the methodology described in this European Standard are provided in Annex A.