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Irish Standard
I.S. EN 1005-2:2003+A1:2008

Safety of machinery - Human physical performance - Part 2: Manual handling of machinery and component parts of machinery

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NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W **NSAI.ie**

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Price Code:
J

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English Version

Safety of machinery - Human physical performance - Part 2: Manual handling of machinery and component parts of machinery

Sécurité des machines - Performance physique humaine - Partie 2: Manutention manuelle de machines et d'éléments de machines

Sicherheit von Maschinen - Menschliche körperliche Leistung - Teil 2: Manuelle Handhabung von Gegenständen in Verbindung mit Maschinen und Maschinenteilen

This European Standard was approved by CEN on 13 February 2003 and includes Amendment 1 approved by CEN on 18 August 2008.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Management Centre: rue de Stassart, 36 B-1050 Brussels

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Contents

Foreword

This document (EN 1005-2:2003+A1:2008) 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of an identical text or by endorsement, at the latest by April 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

This document includes Amendment 1, approved by CEN on 2008-08-18.

This document supersedes EN 1005-2:2003.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ▌A1⟩ ⟨A1▌.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association and supports essential requirements of EU Directive(s).

▌A1⟩ For relationship with EU Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document. ⟨A1▌

EN 1005 consists of the following parts, under the general title "Safety of machinery - Human physical performance":

— Part 1: Terms and definitions;

— Part 2: Manual handling of machinery and component parts of machinery;

— Part 3: Recommended force limits for machinery operation;

— Part 4[1)]: Evaluation of working postures and movements in relation to machinery;

— Part 5[1)]: Risk assessment for repetitive handling at high frequency.

Annexes A, B and C are for informative.

This document includes a Bibliography.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1) This European Standard is under preparation by CEN/TC 122/WG 4 "Biomechanics".

Introduction

When designing and constructing machinery, the manufacturer should meet the essential requirements for safety and health set out in the Machinery Directive. The manufacturer should assess the hazards of the machine and consider these hazards related to the life cycle of the machine.

This European Standard is one of several ergonomic standards for the safety of machinery. EN 614-1 describes the principles to be applied by designers in order to accommodate ergonomic factors.

This standard has been prepared to be a harmonised standard in the sense of the Machinery Directive and associated EFTA regulations.

This European Standard is a type B standard as stated in EN 1070.

The provisions of this document can be supplemented or modified by a type C standard.

NOTE For machines which are covered by the scope of a type C standard and which have been designed and built according to the provisions of that standard, the provisions of that type C standard take precedence over the provisions of this type B standard.

Manual handling of loads can lead to a high risk of injury to the musculoskeletal system if the loads to be handled are too heavy, and/or handled at high frequencies for long durations and/or in awkward postures. Disorders of the musculoskeletal system are of a common occurrence throughout Europe. Manually applied effort is often required by operators working with machines for their intended purpose. Risks exist if the design of the machinery is not in accordance with ergonomic design principles. When designing and constructing machinery where manual handling is required, this standard provides relevant data for working posture, load, frequency and duration. The design criteria given in this standard can be used by the designer when making risk assessments.

This standard requires machinery designers to adopt a three stage approach to:

a) avoid manual handling activities wherever possible;

b) utilise technical aids;

c) further reduce the inherent level of risk by optimising handling activities.

For machines and their component parts which cannot be moved or transported by hand, see 4.2 in EN 292-2:1991.

1 Scope

This European Standard specifies ergonomic recommendations for the design of machinery involving manual handling of machinery and component parts of machinery, including tools linked to the machine, in professional and domestic applications.

This European Standard applies to the manual handling of machinery, component parts of machinery and objects processed by the machine (input/output) of 3 kg or more, for carrying less than 2 m. Objects of less than 3 kg are dealt with in prEN 1005-5[1)]. The standard provides data for ergonomic design and risk assessment concerning lifting, lowering and carrying in relation to the assembly/erection, transport and commissioning (assembly, installation, adjustment), operation, fault finding, maintenance, setting, teaching or process changeover and decommissioning, disposal and dismantling of machinery.

This standard provides current data on the general population and certain sub-populations (clarified in annex A).

This part of the standard does not cover the holding of objects (without walking), pushing or pulling of objects, hand-held machines, or handling while seated.

This document is not applicable to specify the machinery which are manufactured before the date of publication of this document by CEN.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 292-2:1991, *Safety of machinery – Basic concepts, general principles for design – Part 2: Technical principles and specifications.*

EN 614-1, *Safety of machinery – Ergonomic design principles – Part 1: Terminology and general principles.*

EN 1005-1:2001*, Safety of machinery – Human physical performance – Part 1: Terms and definitions.*

EN 1050*, Safety of machinery – Principles for risk assessment.*

EN 1070:1998, *Safety of machinery – Terminology.*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 1005-1:2001 and EN 1070:1998 apply.

4 Recommendations for the design of machinery and component parts where objects are lifted, lowered and carried

4.1 General principles

In order to minimise the risks to the health and safety of the operator, when lifting, lowering and carrying the machine or component parts, the designer/manufacturer of the machine shall:

a) establish whether or not a hazard exists when manual handling activities are performed in relation to the intended use of the machine. If a hazard exists, the risk assessment model should be applied. (see 4.3.1, 4.3.2 and 4.3.3);