



National Standards Authority of Ireland

IRISH STANDARD

I.S. EN 547-2:1997

ICS 13.110

13.180

**SAFETY OF MACHINERY - HUMAN BODY
MEASUREMENTS - PART 2: PRINCIPLES
FOR DETERMINING THE DIMENSIONS
REQUIRED FOR ACCESS OPENINGS**

National Standards
Authority of Ireland
Dublin 9
Ireland

Tel: (01) 807 3800

Tel: (01) 807 3838

*This Irish Standard was
published under the
authority of the National
Standards Authority of
Ireland
and comes into effect on:
August 15, 1997*

**NO COPYING WITHOUT NSAI
PERMISSION EXCEPT AS
PERMITTED BY COPYRIGHT
LAW**

© NSAI 1997

Price Code J

Údarás um Chaighdeáin Náisiúnta na hÉireann

EUROPEAN STANDARD

EN 547-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 1996

ICS 13.110; 13.180

Descriptors: safety of machines, human factors engineering, accident prevention, operators (personnel), human body, ports:openings, orifices

English version

**Safety of machinery - Human body measurements
- Part 2: Principles for determining the dimensions
required for access openings**

Sécurité des machines - Mesures du corps humain
- Partie 2: Principes de détermination des
dimensions requises pour les orifices d'accès

Sicherheit von Maschinen - Körpermaße des
Menschen - Teil 2: Grundlagen für die Bemessung
von Zugangsöffnungen

This European Standard was approved by CEN on 1996-11-15. 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 Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Contents

	Page
Foreword	3
0 Introduction	4
1 Scope	4
2 Normative references	4
3 General requirements	5
4 Access openings	6
4.1 Access opening for the upper body and arms	7
4.2 Access opening for the head as far as the shoulders for inspection tasks	8
4.3 Access opening for both arms (either forward or downward)	8
4.4 Access opening for both lower arms up to elbow (either forward or downward)	9
4.5 Opening for access to the side for one arm up to shoulder joint	10
4.6 Access opening for one lower arm up to the elbow	10
4.7 Access opening for fist	10
4.8 Access opening for flat hand to wrist, including thumb	11
4.9 Access opening for flat hand (four fingers) to base of thumb	11
4.10 Access opening for index finger, restricted by the other fingers	12
4.11 Access opening for one foot to ankle bone	12
4.12 Access opening for forefoot operated control actuators	12
Annex A (normative): Application of the measurements in practice	13
Annex B (informative): Position of access openings	17
Annex C (informative): Notations for dimensions and anthropometric body measurements	25
Annex D (informative): Bibliography.....	27
Annex ZA(informative): Relationship between this European Standard and the EU Directive for Machinery.....	28

Foreword

This European Standard 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 June 1997, and conflicting national standards shall be withdrawn at the latest by June 1997.

This European Standard 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).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this standard.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

0 Introduction

This European Standard is one of several ergonomics standards for the safety of machinery. EN 614-1 "Safety of machinery - Ergonomic design principles - Part 1: Terminology and general principles" describes the principles designers should adopt in order to take account of ergonomic factors.

This European Standard describes how these principles should be applied to the design of access openings.

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

1 Scope

This European Standard specifies the dimensions of openings for access as applied to machinery as defined in EN 292-1. It provides the dimensions to which the values given in EN 547-3 are applicable. Values for additional space requirements are given in annex A. This European Standard has been prepared primarily for non-mobile machinery, there may be additional specific requirements for mobile machinery.

Dimensions for access openings are based on the values for the 95th percentile, whereas reach distances are based on the values for the 5th percentile, in each case the least favourable body dimension of the expected user population being used as a basis. The same considerations apply to the location of access openings.

The anthropometric data given in EN 547-3 originate from static measurements of nude persons and do not take into account body movements, clothing, equipment, machinery operating conditions or environmental conditions.

This European Standard shows how to combine the anthropometric data with suitable allowances to take these factors into account.

Situations where people are to be prevented from reaching a hazard are dealt with in EN 294.

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.

EN 292-1	Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology
EN 294	Safety of machinery - Safety distances to prevent danger zones being reached by the upper limbs
EN 547-3	Safety of machinery - Human body measurements - Part 3: Anthropometric data
EN 614-1	Safety of machinery - Ergonomic design principles - Part 1: Terminology and general principles

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-