



NSAI
Standards

Irish Standard
I.S. EN ISO 5459:2011

Geometrical product specifications (GPS) - Geometrical tolerancing - Datums and datum systems (ISO 5459:2011)

I.S. EN ISO 5459:2011

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWIFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces:

This document is based on:
EN ISO 5459:2011

Published:
24 August, 2011

This document was published under the authority of the NSAI and comes into effect on:
24 August, 2011

ICS number:

01.100.20
17.040.10

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

Údarás um Chaighdeáin Náisiúnta na hÉireann

ICS 01.100.20; 17.040.10

English Version

Geometrical product specifications (GPS) - Geometrical tolerancing - Datums and datum systems (ISO 5459:2011)

Spécification géométrique des produits (GPS) -
Tolérancement géométrique - Références spécifiées et
systèmes de références spécifiées (ISO 5459:2011)

Geometrische Produktspezifikation (GPS) - Geometrische
Tolerierung - Bezüge und Bezugssysteme (ISO 5459:2011)

This European Standard was approved by CEN on 18 May 2011.

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-CENELEC 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-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....3

Foreword

This document (EN ISO 5459:2011) has been prepared by Technical Committee ISO/TC 213 "Dimensional and geometrical product specifications and verification" in collaboration with Technical Committee CEN/TC 290 "Dimensional and geometrical product specification and verification" 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 February 2012, and conflicting national standards shall be withdrawn at the latest by February 2012.

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.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of ISO 5459:2011 has been approved by CEN as a EN ISO 5459:2011 without any modification.

This page is intentionally left BLANK.

I.S. EN ISO 5459:2011
**INTERNATIONAL
STANDARD**

**ISO
5459**

Second edition
2011-08-15

**Geometrical product specifications
(GPS) — Geometrical tolerancing —
Datums and datum systems**

*Spécification géométrique des produits (GPS) — Tolérancement
géométrique — Références spécifiées et systèmes de références
spécifiées*



Reference number
ISO 5459:2011(E)

© ISO 2011



COPYRIGHT PROTECTED DOCUMENT

© ISO 2011

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction.....	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Symbols.....	6
5 Role of datums.....	7
6 General concepts	9
6.1 General	9
6.2 Intrinsic characteristics of surfaces associated with datum features	10
6.2.1 General	10
6.2.2 A single datum established from a single feature	10
6.2.3 Common datum established from two or more single features simultaneously.....	10
6.2.4 Datum systems established in a defined sequence from two or more single features	12
6.3 Single datums, common datums and datum systems	12
6.3.1 General	12
6.3.2 Single datums	12
6.3.3 Common datums	14
6.3.4 Datum systems	14
7 Graphical language	17
7.1 General	17
7.2 Indication of datum features	17
7.2.1 Datum feature indicator	17
7.2.2 Datum feature identifier	18
7.2.3 Datum targets	18
7.3 Specification of datums and datum systems	21
7.4 Indication and meaning of rules	21
7.4.1 General	21
7.4.2 Rules	22
Annex A (normative) Association for datums.....	37
Annex B (informative) Invariance classes	47
Annex C (informative) Examples	49
Annex D (informative) Former practices.....	71
Annex E (informative) Examples of a datum system or a common datum established with contacting features	73
Annex F (normative) Relations and dimensions of graphical symbols	79
Annex G (informative) Relationship to the GPS matrix model	80
Bibliography.....	81

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 5459 was prepared by Technical Committee ISO/TC 213, *Dimensional and geometrical product specification and verification*.

This second edition cancels and replaces the first edition (ISO 5459:1981), which has been technically revised.

Introduction

ISO 5459 is a geometrical product specification (GPS) standard and is to be regarded as a general GPS standard (see ISO/TR 14638). It influences the chain links 1 to 3 of the chain of standards on datums.

The ISO/GPS Masterplan given in ISO/TR 14638 gives an overview of the ISO/GPS system of which this standard is a part. The fundamental rules of ISO/GPS given in ISO 8015 apply to this standard and the default decision rules given in ISO 14253-1 apply to specifications made in accordance with this standard unless otherwise indicated.

For more detailed information of the relation of this International Standard to the GPS matrix model, see Annex G.

For the definitive presentation (proportions and dimensions) of symbols for geometrical tolerancing, see ISO 7083.

The previous version of ISO 5459 dealt only with planes, cylinders and spheres being used as datums. There is a need to consider all types of surfaces, which are increasingly used in industry. The definitions of classes of surfaces as given in Annex B are exhaustive and unambiguous.

This edition of ISO 5459 applies new concepts and terms that have not been used in previous ISO GPS standards. These concepts are described in detail in ISO/TR 14638, ISO 17450-1 and ISO 17450-2; therefore, it is recommended to refer to these standards when using ISO 5459.

This International Standard provides tools to express location or orientation constraints, or both, for a tolerance zone. It does not provide information about the relationship between datums or datum systems and functional requirements or applications.

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](#)
-