

SVENSK STANDARD

SS-EN ISO 3611:2010

Fastställt/Approved: 2010-11-22
Publicerad/Published: 2011-01-12
Utgåva/Edition: 1
Språk/Language: engelska/English
ICS: 17.040.30

Geometriska produktspecifikationer (GPS) – Mätdon – Mikrometer för utvändiga mätningar: Konstruktion och metrologiska egenskaper (ISO 3611:2010)

Geometrical product specifications (GPS) – Dimensional measuring equipment: Micrometers for external measurements – Design and metrological characteristics (ISO 3611:2010)

This preview is downloaded from www.sis.se. Buy the entire standard via <https://www.sis.se/std-75988>

Standarder får världen att fungera

SIS (Swedish Standards Institute) är en fristående ideell förening med medlemmar från både privat och offentlig sektor. Vi är en del av det europeiska och globala nätverk som utarbetar internationella standarder. Standarder är dokumenterad kunskap utvecklad av framstående aktörer inom industri, näringsliv och samhälle och befrämjar handel över gränser, bidrar till att processer och produkter blir säkrare samt effektiviserar din verksamhet.

Delta och påverka

Som medlem i SIS har du möjlighet att påverka framtida standarder inom ditt område på nationell, europeisk och global nivå. Du får samtidigt tillgång till tidig information om utvecklingen inom din bransch.

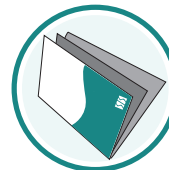
Ta del av det färdiga arbetet

Vi erbjuder våra kunder allt som rör standarder och deras tillämpning. Hos oss kan du köpa alla publikationer du behöver – allt från enskilda standarder, tekniska rapporter och standardpaket till handböcker och onlinetjänster. Genom vår webbtjänst e-nav får du tillgång till ett lättnavigerat bibliotek där alla standarder som är aktuella för ditt företag finns tillgängliga. Standarder och handböcker är källor till kunskap. Vi säljer dem.

Utveckla din kompetens och lyckas bättre i ditt arbete

Hos SIS kan du gå öppna eller företagsinterna utbildningar kring innehåll och tillämpning av standarder. Genom vår närhet till den internationella utvecklingen och ISO får du rätt kunskap i rätt tid, direkt från källan. Med vår kunskap om standarders möjligheter hjälper vi våra kunder att skapa verklig nytta och lönsamhet i sina verksamheter.

Vill du veta mer om SIS eller hur standarder kan effektivisera din verksamhet är du välkommen in på www.sis.se eller ta kontakt med oss på tel 08-555 523 00.



Standards make the world go round

SIS (Swedish Standards Institute) is an independent non-profit organisation with members from both the private and public sectors. We are part of the European and global network that draws up international standards. Standards consist of documented knowledge developed by prominent actors within the industry, business world and society. They promote cross-border trade, they help to make processes and products safer and they streamline your organisation.

Take part and have influence

As a member of SIS you will have the possibility to participate in standardization activities on national, European and global level. The membership in SIS will give you the opportunity to influence future standards and gain access to early stage information about developments within your field.

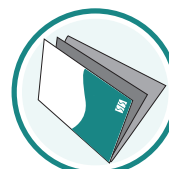
Get to know the finished work

We offer our customers everything in connection with standards and their application. You can purchase all the publications you need from us - everything from individual standards, technical reports and standard packages through to manuals and online services. Our web service e-nav gives you access to an easy-to-navigate library where all standards that are relevant to your company are available. Standards and manuals are sources of knowledge. We sell them.

Increase understanding and improve perception

With SIS you can undergo either shared or in-house training in the content and application of standards. Thanks to our proximity to international development and ISO you receive the right knowledge at the right time, direct from the source. With our knowledge about the potential of standards, we assist our customers in creating tangible benefit and profitability in their organisations.

If you want to know more about SIS, or how standards can streamline your organisation, please visit www.sis.se or contact us on phone +46 (0)8-555 523 00



Europastandarden EN ISO 3611:2010 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN ISO 3611:2010.

The European Standard EN ISO 3611:2010 has the status of a Swedish Standard. This document contains the official version of EN ISO 3611:2010.

© Copyright/Upphovsrätten till denna produkt tillhör SIS, Swedish Standards Institute, Stockholm, Sverige. Användningen av denna produkt regleras av slutanvändarlicensen som återfinns i denna produkt, se standardens sista sidor.

© Copyright SIS, Swedish Standards Institute, Stockholm, Sweden. All rights reserved. The use of this product is governed by the end-user licence for this product. You will find the licence in the end of this document.

Uppllysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna uppllysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

Denna standard är framtagen av kommittén för Geometriska produktspecifikationer, SIS/TK 507/AG 4.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

EUROPEAN STANDARD

EN ISO 3611

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2010

ICS 17.040.30

English Version

**Geometrical product specifications (GPS) - Dimensional
measuring equipment: Micrometers for external measurements -
Design and metrological characteristics (ISO 3611:2010)**

Spécification géométrique des produits (GPS) -
Équipement de mesurage dimensionnel: Micromètres
d'extérieur - Caractéristiques de conception et
caractéristiques métrologiques (ISO 3611:2010)

Geometrische Produktspezifikation (GPS) -
Längenmessgeräte: Bügelmessschrauben -
Konstruktionsmerkmale und messtechnische Merkmale
(ISO 3611:2010)

This European Standard was approved by CEN on 11 September 2010.

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	iv
Introduction.....	v
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions	1
4 Design characteristics	2
4.1 General design and nomenclature	2
4.2 Main dimensions	3
4.3 Types of indicating devices	3
4.3.1 General	3
4.3.2 Analogue indicating devices.....	4
4.3.3 Digital indicating devices, with mechanical digital display	5
4.3.4 Digital indicating devices with electronic digital display.....	6
4.4 Protection for field use	6
4.5 Frame.....	7
4.6 Measuring faces	7
4.7 Measuring force limiting device.....	7
4.8 Adjustment devices.....	7
4.9 Design characteristics (manufacturer's specification).....	7
5 Metrological characteristics	8
5.1 General	8
5.2 Effect of spindle clamp	8
5.3 Maximum permissible error of indication (limited by MPE).....	8
5.3.1 General	8
5.3.2 Full surface contact error, J (limited by MPE_J)	8
5.3.3 Repeatability, R (limited by MPE_R).....	8
5.3.4 Partial surface contact error, E (limited by MPE_E).....	8
5.4 Measuring forces (limited by MPL)	8
5.5 Instrument specification sheet	8
6 Proof of conformance with specifications.....	9
7 Marking.....	9
Annex A (informative) Example of an error-of-indication curve	10
Annex B (informative) Example of data sheet for micrometers for external measurements.....	11
Annex C (informative) Calibration of metrological characteristics.....	12
Annex D (informative) Error tests.....	13
Annex E (informative) Notes on use	15
Annex F (informative) Relation to the GPS matrix model.....	16
Bibliography.....	18

Foreword

This document (EN ISO 3611:2010) 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 May 2011, and conflicting national standards shall be withdrawn at the latest by May 2011.

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 3611:2010 has been approved by CEN as a EN ISO 3611:2010 without any modification.

Introduction

This International Standard 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 link 5 of the chain of standards on size in the general GPS matrix.

For more detailed information on the relation between this International Standard, other standards and the GPS matrix model, see Annex F.

Geometrical product specifications (GPS) — Dimensional measuring equipment: Micrometers for external measurements — Design and metrological characteristics

1 Scope

This International Standard specifies the most important design and metrological characteristics of micrometers for external measurements:

- with analogue indication;
- with digital indication: mechanical or electronic digital display.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 14253-1, *Geometrical Product Specifications (GPS) — Inspection by measurement of workpieces and measuring equipment — Part 1: Decision rules for proving conformance or non-conformance with specifications*

ISO 14253-2, *Geometrical product specifications (GPS) — Inspection by measurement of workpieces and measuring equipment — Part 2: Guidance for the estimation of uncertainty in GPS measurement, in calibration of measuring equipment and in product verification*

ISO 14978:2006, *Geometrical product specifications (GPS) — General concepts and requirements for GPS measuring equipment*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

ISO/IEC Guide 98-3, *Uncertainty of measurement — Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

ISO/IEC Guide 99, *International vocabulary of metrology — Basic and general concepts and associated terms (VIM)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 14978, ISO/IEC Guide 99 and the following apply.