



BSI Standards Publication

# Geometrical product specifications (GPS) – Dimensional measuring equipment

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Part 1: Design and metrological characteristics of callipers (ISO 13385-1:2019)

## National foreword

This British Standard is the UK implementation of EN ISO 13385-1:2019. It supersedes BS EN ISO 13385-1:2011, which is withdrawn.

BS EN ISO 13385-1:2019 is meant to be read in conjunction with BS EN ISO 14978:2018, which contains general requirements for GPS standards. Users are advised that BS EN ISO 14978:2018 should be close at hand when reading and using ISO standards for specific GPS measuring equipment.

The UK participation in its preparation was entrusted to Technical Committee TPR/1, Technical Product Realization.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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## Geometrical product specifications (GPS) - Dimensional measuring equipment - Part 1: Design and metrological characteristics of callipers (ISO 13385-1:2019)

Spécification géométrique des produits (GPS) -  
Équipement de mesure dimensionnel - Partie 1:  
Caractéristiques de conception et caractéristiques  
métrologiques des pieds à coulisse (ISO 13385-1:2019)

Geometrische Produktspezifikation (GPS) -  
Längenmessgeräte - Teil 1: Konstruktionsmerkmale  
und messtechnische Anforderungen von  
Messschiebern (ISO 13385-1:2019)

This European Standard was approved by CEN on 28 July 2019.

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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.

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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

## European foreword

This document (EN ISO 13385-1:2019) 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 March 2020, and conflicting national standards shall be withdrawn at the latest by March 2020.

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

This document supersedes EN ISO 13385-1:2011.

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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Endorsement notice

The text of ISO 13385-1:2019 has been approved by CEN as EN ISO 13385-1:2019 without any modification.

# Contents

	Page
<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Design characteristics</b> .....	<b>2</b>
4.1 General design and nomenclature.....	2
4.2 Dimensions.....	2
<b>5 Metrological characteristics</b> .....	<b>5</b>
5.1 General.....	5
5.2 Rated operating conditions.....	5
5.3 Reference point.....	5
5.4 Test methods.....	5
5.5 Partial surface contact error, $E$ (limited by $E_{MPE}$ ).....	5
5.6 Shift error, $S$ (limited by $S_{MPE}$ ).....	7
5.6.1 General.....	7
5.6.2 Shift error — Internal measuring faces.....	7
5.6.3 Shift error — Crossed knife-edge internal measuring faces.....	7
5.6.4 Shift error — Depth or step measuring faces.....	8
5.7 MPE values.....	9
5.8 Special cases.....	9
<b>6 Determination of conformity to specifications</b> .....	<b>9</b>
6.1 General.....	9
6.2 Measurement uncertainty.....	9
6.3 Decision rule.....	10
<b>7 Marking</b> .....	<b>10</b>
<b>Annex A (informative) Calibration guidelines for metrological characteristics</b> .....	<b>11</b>
<b>Annex B (normative) Default MPE values for metrological characteristics</b> .....	<b>12</b>
<b>Annex C (informative) Relation to the GPS matrix model</b> .....	<b>13</b>
<b>Bibliography</b> .....	<b>14</b>

## 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 213, *Dimensional and geometrical product specifications and verification*.

This second edition cancels and replaces the first edition (ISO 13385-1:2011), which has been technically revised.

The main changes compared to the previous edition are as follows:

- figures have been updated to show more modern technology;
- general design characteristics have been removed and reference to ISO 14978:2018 included;
- metrological characteristics have been clarified and modified;
- requirements for test methods have been included;
- default values for maximum permissible errors have been added.

A list of all parts in the ISO 13385 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

This document is a geometrical product specification (GPS) standard and is to be regarded as a general GPS standard (see ISO 14638). It influences the chain links F and G of the chain of standards on size and distance in the general GPS matrix (see [Annex C](#)).

The ISO/GPS matrix model given in ISO 14638 gives an overview of the ISO/GPS system of which this document is a part. The fundamental rules of ISO/GPS given in ISO 8015 apply to this document and the default decision rules given in ISO 14253-1 apply to specifications made in accordance with this document, unless otherwise indicated; see ISO/TR 14253-6 for additional information on the selection of alternative decision rules.

For more detailed information on the relation of this document to other standards and the GPS matrix model, see [Annex C](#).

# Geometrical product specifications (GPS) — Dimensional measuring equipment —

## Part 1: Design and metrological characteristics of callipers

### 1 Scope

This document provides the most important design and metrological characteristics of callipers

- with analogue indication: vernier scale or circular scale (dial), and
- with digital indication: digital display.

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 verifying conformity or nonconformity with specifications*

ISO 14253-5, *Geometrical product specifications (GPS) — Inspection by measurement of workpieces and measuring equipment — Part 5: Uncertainty in verification testing of indicating measuring instruments*

ISO/TR 14253-6, *Geometrical product specifications (GPS) — Inspection by measurement of workpieces and measuring equipment — Part 6: Generalized decision rules for the acceptance and rejection of instruments and workpieces*

ISO 14978:2018, *Geometrical product specifications (GPS) — General concepts and requirements for GPS measuring equipment*

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 and ISO/IEC Guide 99 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>