

**SLOVENSKI STANDARD**  
**oSIST prEN ISO 13385-2:2019**  
**01-julij-2019**

---

**Specifikacija geometrijskih veličin izdelka (GPS) - Oprema za merjenje dimenzij - 2.  
del: Merila za merjenje globin; konstrukcijske in meroslovne karakteristike  
(ISO/DIS 13385-2:2019)**

Geometrical product specifications (GPS) - Dimensional measuring equipment - Part 2:  
Calliper depth gauges; Design and metrological characteristics (ISO/DIS 13385-2:2019)

Geometrische Produktspezifikation (GPS) - Längenmessgeräte - Teil 2:  
Tiefenmessschieber; Konstruktionsmerkmale und messtechnische Anforderungen  
(ISO/DIS 13385-2:2019)

Spécification géométrique des produits (GPS) - Équipement de mesure dimensionnel  
- Partie 2: Jauges de profondeur; caractéristiques de conception et caractéristiques  
métrologiques (ISO/DIS 13385-2:2019)

**Ta slovenski standard je istoveten z: prEN ISO 13385-2**

---

**ICS:**

|           |  |  |
|-----------|--|--|
| 17.040.30 | Merila   | Measuring instruments                      |
| 17.040.40 | Specifikacija geometrijskih<br>veličin izdelka (GPS) | Geometrical Product<br>Specification (GPS) |

**oSIST prEN ISO 13385-2:2019**

**en,fr,de**



# DRAFT INTERNATIONAL STANDARD

## ISO/DIS 13385-2

ISO/TC 213

Secretariat: BSI

Voting begins on:  
2019-05-30Voting terminates on:  
2019-08-22

---

---

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

### Part 2: Calliper depth gauges; Design and metrological characteristics

*Spécification géométrique des produits (GPS) — Équipement de mesurage dimensionnel —**Partie 2: Jauges de profondeur; caractéristiques de conception et caractéristiques métrologiques*

ICS: 17.040.30

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)

[SIST EN ISO 13385-2:2020](https://standards.iteh.ai/catalog/standards/sist/3a91a98b-9140-443d-b017-bffbdbc7174f/sist-en-iso-13385-2-2020)<https://standards.iteh.ai/catalog/standards/sist/3a91a98b-9140-443d-b017-bffbdbc7174f/sist-en-iso-13385-2-2020>

THIS DOCUMENT IS A DRAFT CIRCULATED FOR COMMENT AND APPROVAL. IT IS THEREFORE SUBJECT TO CHANGE AND MAY NOT BE REFERRED TO AS AN INTERNATIONAL STANDARD UNTIL PUBLISHED AS SUCH.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

This document is circulated as received from the committee secretariat.

**ISO/CEN PARALLEL PROCESSING**



Reference number  
ISO/DIS 13385-2:2019(E)

# iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN ISO 13385-2:2020

<https://standards.iteh.ai/catalog/standards/sist/3a91a98b-9140-443d-b017-bffbdbc7174f/sist-en-iso-13385-2-2020>



## **COPYRIGHT PROTECTED DOCUMENT**

© ISO 2019

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Fax: +41 22 749 09 47  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# 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.....  | 3         |
| <b>5 Metrological characteristics</b> .....  | <b>3</b>  |
| 5.1 General.....   | 3         |
| 5.2 Rated operating conditions.....  | 4         |
| 5.3 Reference point.....   | 4         |
| 5.4 Test methods.....  | 4         |
| 5.5 Partial surface contact error, $E$ (limited by $E_{MPE}$ ).....                        | 4         |
| 5.6 Shift error, $S$ (limited by $SMPE$ ).....   | 5         |
| 5.7 MPE values.....  | 6         |
| 5.8 Special cases.....   | 6         |
| <b>6 Determination of conformance to specifications</b> .....                              | <b>7</b>  |
| 6.1 General.....   | 7         |
| 6.2 Measurement uncertainty.....   | 7         |
| 6.3 Compliance with specifications.....  | 7         |
| <b>7 Marking</b> .....   | <b>7</b>  |
| <b>Annex A (informative) Calibration guidelines for metrological characteristics</b> ..... | <b>8</b>  |
| <b>Annex B (normative) Default MPE values for metrological characteristics</b> .....       | <b>9</b>  |
| <b>Annex C (informative) Relation to the GPS matrix model</b> .....                        | <b>10</b> |
| <b>Bibliography</b> .....  | <b>11</b> |

## ISO/DIS 13385-2:2019(E)

### 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*.

ISO 13385 consists of the following parts, under the general title *Geometrical product specifications (GPS) — Dimensional measuring equipment*: [standards.itih.ai](http://www.iso.org/standards.itih.ai)  
[SIST EN ISO 13385-2:2020](http://www.iso.org/standards.itih.ai)  
[7174f/sist-en-iso-13385-2-2020](http://www.iso.org/standards.itih.ai)

- *Part 1: Callipers; Design and metrological characteristics*
- *Part 2: Calliper depth gauges; Design and metrological characteristics*

## 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 chain links for measuring equipment and calibration on size and distance in the general GPS matrix (see [Annex C](#)).

The ISO/GPS Masterplan given in ISO 14638 gives an overview of the ISO/GPS system on 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](#).

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

[SIST EN ISO 13385-2:2020](#)

<https://standards.iteh.ai/catalog/standards/sist/3a91a98b-9140-443d-b017-bffbdbc7174f/sist-en-iso-13385-2-2020>





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

## Part 2: Calliper depth gauges; Design and metrological characteristics

### 1 Scope

This document provides the most important design and metrological characteristics of calliper depth gauges

- 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, *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, 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>

## ISO/DIS 13385-2:2019(E)

### 3.1 calliper depth gauge

measuring instrument which gives the evaluation of a dimensional quantity of a step or depth of a feature corresponding to the distance between the end of a beam and the face of a measuring base on the basis of the movement of a slider, moving relative to a measuring scale on a rigid beam

Note 1 to entry: See examples in [Figures 1](#) and [2](#).

Note 2 to entry: The indication can be either analogue (vernier scale or circular scale) or digital.

### 3.2 measuring face contact

contact between the measuring face and an integral feature of a workpiece

#### 3.2.1 full measuring face contact

contact between the full area of the measuring face and an integral feature of a workpiece

#### 3.2.2 partial measuring face contact

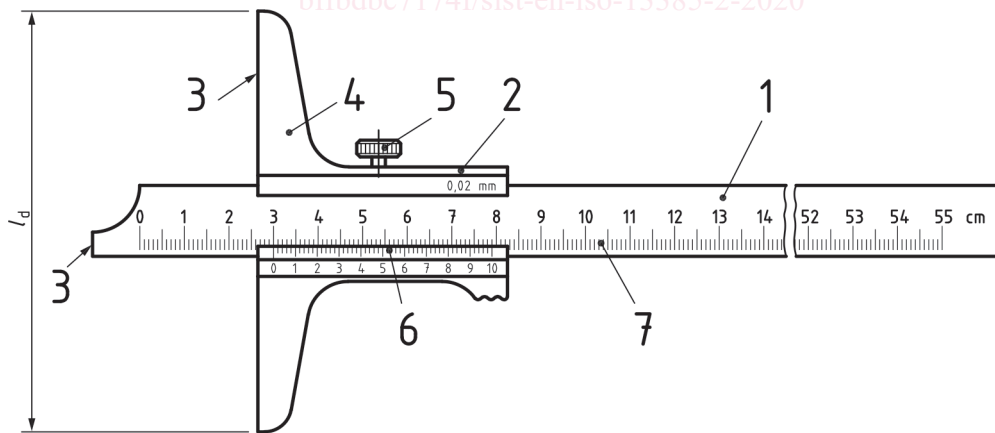
contact between a partial area of the measuring face and an integral feature of a workpiece

## 4 Design characteristics

### 4.1 General design and nomenclature

The design shall follow the general guidelines in ISO 14978, including the common design characteristics in ISO 14978:2018, Annex D. Examples of the general design of calliper depth gauges are shown in [Figures 1](#) and [2](#).

The scale interval of the main scale on the beam of a calliper with a vernier scale shall be 1 mm. In the case of callipers with circular scales, the scale interval on the beam shall be either 1 mm or 2 mm.



#### Key

|   |                       |       |                          |
|---|-----------------------|-------|--------------------------|
| 1 | beam                  | 5     | locking screw            |
| 2 | slider                | 6     | vernier scale            |
| 3 | depth measuring faces | 7     | main scale               |
| 4 | measuring base        | $l_d$ | length of measuring base |

**Figure 1 — Example design of a vernier calliper depth gauge (slider with locking screw)**