

**Geometrical product specifications (GPS) - Dimensional
measuring equipment: Electronic digital-indicator gauge
- Design and metrological characteristics (ISO
13102:2012)**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 13102:2012 sisaldab Euroopa standardi EN ISO 13102:2012 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 13102:2012 consists of the English text of the European standard EN ISO 13102:2012.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 15.08.2012.	Date of Availability of the European standard is 15.08.2012.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 17.040.30

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:
Aru 10, 10317 Tallinn, Eesti; www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:
Aru 10, 10317 Tallinn, Estonia; www.evs.ee; phone 605 5050; e-mail info@evs.ee

ICS 17.040.30

English Version

**Geometrical product specifications (GPS) - Dimensional
measuring equipment: Electronic digital-indicator gauge - Design
and metrological characteristics (ISO 13102:2012)**

Spécification géométrique des produits (GPS) -
Instruments de mesure dimensionnel: Comparateurs à
tige rentrante à affichage numérique - Caractéristiques de
conception et caractéristiques métrologiques (ISO
13102:2012)

Geometrische Produktspezifikation und -prüfung (GPS) -
Längenmessgeräte - Konstruktionsmerkmale und
messtechnische Merkmale für elektronische digitale
Messuhren (ISO/FDIS 13102:2012)

This European Standard was approved by CEN on 20 July 2012.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

This document (EN ISO 13102:2012) 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 2013, and conflicting national standards shall be withdrawn at the latest by February 2013.

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

Endorsement notice

The text of ISO 13102:2012 has been approved by CEN as a EN ISO 13102:2012 without any modification.

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Design characteristics	1
4.1 General design and nomenclature	1
4.2 Main dimensions	3
4.3 Digital indicating display	4
4.4 Error messages	4
4.5 Interface	4
4.6 Protection for field use	4
4.7 Contact element	4
4.8 Zero adjustment	4
4.9 Additional functions	5
4.10 Design characteristics (manufacturer's specification)	5
5 Metrological characteristics	5
5.1 General	5
5.2 Maximum permissible error of indication	5
5.3 Maximum permissible limit	6
6 Proving of conformance with specification	6
7 Marking	6
Annex A (informative) Example of a diagram of errors of indication	7
Annex B (informative) Data sheet (example)	8
Annex C (informative) Calibration of metrological characteristics	9
Annex D (informative) Relation to the GPS matrix model	10
Bibliography	12

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 chain link 5 of the chain of standards on size and distance in the general GPS matrix.

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 the standard to other standards and the GPS matrix model, see Annex D.

Geometrical product specifications (GPS) — Dimensional measuring equipment: Electronic digital-indicator gauge — Design and metrological characteristics

1 Scope

This International Standard specifies the most important design and metrological characteristics of electronic digital-indicator gauges.

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: Guide to the estimation of uncertainty in GPS measurement, in calibration of measuring equipment and in product verification*

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

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

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

3 Terms and definitions

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

3.1

electronic digital-indicator gauge

measuring instrument in which the axial displacements of a plunger are obtained by a transducer and converted into an electronic signal by suitable electronic means and transmitted to a physically integrated digital display

4 Design characteristics

4.1 General design and nomenclature

The general design and workmanship shall be such that the performance of the electronic digital-indicator gauge complies with the requirements of this International Standard.

The design and rigidity of the electronic digital-indicator gauge shall be such that the freedom of movement of the plunger is not impaired by clamping the stem of the instrument, providing that such clamping is carried out in a proper manner. Where alternative methods of mounting are provided, e.g. attaching the lug on the back plate, the design and rigidity of that mounting shall be such that the performance is not impaired.