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**BS EN ISO 16610-1:2015**



**BSI Standards Publication**

# **Geometrical product specifications (GPS) — Filtration**

Part 1: Overview and basic concepts

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This British Standard is the UK implementation of EN ISO 16610-1:2015. It supersedes DD ISO/TS 16610-1:2006 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee TDW/4, Technical Product Realization.

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

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## EUROPÄISCHE NORM

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## Geometrical product specifications (GPS) - Filtration - Part 1: Overview and basic concepts (ISO 16610-1:2015)

Spécification géométrique des produits (GPS) - Filtrage -  
Partie 1: Vue d'ensemble et concepts de base (ISO 16610-  
1:2015)

Geometrische Produktspezifikation (GPS) - Filterung - Teil  
1: Überblick und grundlegende Konzepte (ISO 16610-  
1:2015)

This European Standard was approved by CEN on 14 February 2015.

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**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## Foreword

This document (EN ISO 16610-1:2015) 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of an identical text or by endorsement, at the latest by October 2015, and conflicting national standards shall be withdrawn at the latest by October 2015.

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 16610-1:2015 has been approved by CEN as EN ISO 16610-1:2015 without any modification.

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## 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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary Information](#)

The committee responsible for this document is ISO/TC 213, *Dimensional and geometrical product specifications and verification*.

This first edition cancels and replaces ISO/TS 16610-1:2006 which has been technically revised.

ISO 16610 consists of the following parts, under the general title *Geometrical product specifications (GPS) — Filtration*:

- *Part 1: Overview and basic concepts*
- *Part 20: Linear profile filters: Basic concepts*
- *Part 21: Linear profile filters: Gaussian filters*
- *Part 22: Linear profile filters: Spline filters*
- *Part 28: Profile filters: End effects*
- *Part 29: Linear profile filters: Spline wavelets*
- *Part 30: Robust profile filters: Basic concepts*
- *Part 31: Robust profile filters: Gaussian regression filters*
- *Part 32: Robust profile filters: Spline filters*
- *Part 40: Morphological profile filters: Basic concepts*
- *Part 41: Morphological profile filters: Disk and horizontal line-segment filters*
- *Part 49: Morphological profile filters: Scale space techniques*
- *Part 60: Linear areal filters — Basic concepts*
- *Part 61: Linear areal filters — Gaussian filters*

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— *Part 71: Robust areal filters: Gaussian regression filters*

— *Part 85: Morphological areal filters: Segmentation*

The following parts are planned:

— *Part 26: Linear profile filters: Filtration on nominally orthogonal grid planar data sets*

— *Part 27: Linear profile filters: Filtration on nominally orthogonal grid cylindrical data sets*

— *Part 45: Morphological profile filters: Segmentation*

— *Part 62: Linear areal filters: Spline filters*

— *Part 69: Linear areal filters: Spline wavelets*

— *Part 70: Robust areal filters: Basic concepts*

— *Part 72: Robust areal filters: Spline filters*

— *Part 80: Morphological areal filters: Basic concepts*

— *Part 81: Morphological areal filters: Sphere and horizontal planar segment filters*

— *Part 89: Morphological areal filters: Scale space techniques*

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## Introduction

This part of ISO 16610 is a geometrical product specification (GPS) standard and is to be regarded as a general GPS standard (see ISO/TR 14638). It influences chain links 3 and 6 in the GPS matrix structure.

The ISO/GPS Masterplan given in ISO 14638 gives an overview of the ISO/GPS system of which this part of ISO 16610 is a part of. The fundamental rules of ISO/GPS given in ISO 8015 apply to this part of ISO 16610 and the default decision rules given in ISO 14253-1 apply to the specifications made in accordance with this part of ISO 16610, unless otherwise indicated.

For more detailed information about the relation of this part of ISO 16610 to the GPS matrix model, see [Annex F](#).

This part of ISO 16610 also develops the terminology and concepts for GPS filtration. This part of ISO 16610 generalizes the concept of filtration. The series of ISO 16610 presents a toolbox of filtration techniques to enable the user to choose an appropriate filter for the functional requirements. They are fundamental International Standards upon which other ISO documents are built.



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# Geometrical product specifications (GPS) — Filtration —

## Part 1: Overview and basic concepts

### 1 Scope

This part of ISO 16610 defines the basic terminology for GPS filtration and the framework for the fundamental procedures used in GPS filtration.

### 2 Normative references

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

ISO 17450-1:2011, *Geometrical product specifications (GPS) — General concepts — Part 1: Model for geometrical specification and verification*

ISO 17450-2:2012, *Geometrical product specifications (GPS) — General concepts — Part 2: Basic tenets, specifications, operators, uncertainties and ambiguities*

ISO/IEC Guide 99:2007, *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/IEC Guide 99, ISO 17450-1, ISO 17450-2, and the following apply.

#### 3.1

##### **integral feature**

geometrical feature belonging to the real surface of the workpiece or to a surface model

Note 1 to entry: An integral feature is intrinsically defined, e.g. skin of the workpiece.

Note 2 to entry: For a statement of specifications, geometrical features obtained from partition of the surface model or of real surface of workpiece shall be defined. These features, called “integral features”, are models of the different physical parts of the workpiece that have specific functions, especially those in contact with adjacent workpieces.

Note 3 to entry: An integral feature can be identified, for example, by

- a partition of the surface model,
- a partition of another integral feature, or
- a collection of other integral features.

[SOURCE: ISO 17450-1:2011, 3.3.5]

#### 3.1.1

##### **surface portion**

##### **SP**

portion of a partitioned *integral feature* ([3.1](#))