

**SLOVENSKI STANDARD**  
**SIST EN ISO 16610-71:2014**  
**01-december-2014**

---

**Specifikacija geometrijskih veličin izdelka (GPS) – Filtriranje - 71. del:  
Grobopovršinski filtri: Gaussovi regresijski filtri (ISO 16610-71:2014)**

Geometrical product specifications (GPS) - Filtration - Part 71: Robust areal filters:  
Gaussian regression filters (ISO 16610-71:2014)

Geometrische Produktspezifikation (GPS) - Filterung - Teil 71: Robuste Flächenfilter:  
Gaußsche Regressionsfilter (ISO 16610-71:2014)

Spécification géométrique des produits (GPS) - Filtrage - Partie 71: Filtres surfaciques  
robustes: Filtres de régressions gaussiens (ISO 16610-71:2014)

<https://standards.iteh.ai/catalog/standards/sist/86270aff-f82d-448f-8457-f854b78885c7/sist-en-iso-16610-71-2014>

**Ta slovenski standard je istoveten z: EN ISO 16610-71:2014**

---

**ICS:**

17.040.20      Lastnosti površin      Properties of surfaces

**SIST EN ISO 16610-71:2014**      **en**

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

SIST EN ISO 16610-71:2014

<https://standards.iteh.ai/catalog/standards/sist/86270aff-f82d-448f-8457-f854b78885c7/sist-en-iso-16610-71-2014>

EUROPEAN STANDARD

EN ISO 16610-71

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2014

ICS 17.040.20

English Version

## Geometrical product specifications (GPS) - Filtration - Part 71: Robust areal filters: Gaussian regression filters (ISO 16610- 71:2014)

Spécification géométrique des produits (GPS) - Filtrage -  
Partie 71: Filtres surfaciques robustes: Filtres de régression  
gaussiens (ISO 16610-71:2014)

Geometrische Produktspezifikation (GPS) - Filterung - Teil  
71: Robuste Flächenfilter: Gaußsche Regressionsfilter (ISO  
16610-71:2014)

This European Standard was approved by CEN on 16 August 2014.

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

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

Contents	Page
Foreword.....	3

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

[SIST EN ISO 16610-71:2014](https://standards.iteh.ai/catalog/standards/sist/86270aff-f82d-448f-8457-f854b78885c7/sist-en-iso-16610-71-2014)  
<https://standards.iteh.ai/catalog/standards/sist/86270aff-f82d-448f-8457-f854b78885c7/sist-en-iso-16610-71-2014>

## Foreword

This document (EN ISO 16610-71:2014) 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 2015, and conflicting national standards shall be withdrawn at the latest by March 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 16610-71:2014 has been approved by CEN as EN ISO 16610-71:2014 without any modification.

ITEH STANDARD PREVIEW  
(standards.iteh.ai)

[SIST EN ISO 16610-71:2014](https://standards.iteh.ai/catalog/standards/sist/86270aff-f82d-448f-8457-f854b78885c7/sist-en-iso-16610-71-2014)

<https://standards.iteh.ai/catalog/standards/sist/86270aff-f82d-448f-8457-f854b78885c7/sist-en-iso-16610-71-2014>

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

SIST EN ISO 16610-71:2014

<https://standards.iteh.ai/catalog/standards/sist/86270aff-f82d-448f-8457-f854b78885c7/sist-en-iso-16610-71-2014>

INTERNATIONAL  
STANDARD

ISO  
16610-71

First edition  
2014-09-15

---

---

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

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

**iTeh STANDARD PREVIEW**  
*Spécification géométrique des produits (GPS) — Filtrage —*  
*(standards.iteh.ai)* **Partie 71: Filtres surfaciques robustes: Filtres de régression gaussiens**

[SIST EN ISO 16610-71:2014](https://standards.iteh.ai/catalog/standards/sist/86270aff-f82d-448f-8457-f854b78885c7/sist-en-iso-16610-71-2014)

<https://standards.iteh.ai/catalog/standards/sist/86270aff-f82d-448f-8457-f854b78885c7/sist-en-iso-16610-71-2014>



Reference number  
ISO 16610-71:2014(E)

© ISO 2014

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

[SIST EN ISO 16610-71:2014](https://standards.iteh.ai/catalog/standards/sist/86270aff-f82d-448f-8457-f854b78885c7/sist-en-iso-16610-71-2014)  
<https://standards.iteh.ai/catalog/standards/sist/86270aff-f82d-448f-8457-f854b78885c7/sist-en-iso-16610-71-2014>



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2014

All rights reserved. Unless otherwise specified, 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  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland



# Contents

	Page
<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>vi</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 Robust planar Gaussian regression filter</b> .....	<b>2</b>
4.1 General.....	2
4.2 Weighting function.....	2
4.3 Filter equation.....	3
4.4 Transmission characteristics.....	5
<b>5 Robust cylindrical Gaussian regression filter</b> .....	<b>5</b>
5.1 General.....	5
5.2 Weighting function.....	5
5.3 Filter equation.....	6
5.4 Transmission characteristics.....	7
<b>6 Nesting Index for planar and cylinder surfaces</b> .....	<b>8</b>
<b>7 Filter designation</b> .....	<b>8</b>
<b>Annex A (informative) Regression filter</b> .....	<b>9</b>
<b>Annex B (informative) Examples</b> .....	<b>11</b>
<b>Annex C (informative) Relationship to the filtration matrix model</b> .....	<b>16</b>
<b>Annex D (informative) Relation to the GPS matrix model</b> .....	<b>18</b>
<b>Bibliography</b> .....	<b>20</b>

## ISO 16610-71:2014(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 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*.

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

- Part 1: Overview and basic concepts [Technical Specification]
- Part 20: Linear profile filters: Basic concepts [Technical Specification]
- Part 21: Linear profile filters: Gaussian filters
- Part 22: Linear profile filters: Spline filters [Technical Specification]
- Part 28: Profile filters: End effects [Technical Specification]
- Part 29: Linear profile filters: Spline wavelets [Technical Specification]
- Part 30: Robust profile filters: Basic concepts [Technical Specification]
- Part 31: Robust profile filters: Gaussian regression filters [Technical Specification]
- Part 32: Robust profile filters: Spline filters [Technical Specification]
- Part 40: Morphological profile filters: Basic concepts [Technical Specification]
- Part 41: Morphological profile filters: Disk and horizontal line-segment filters [Technical Specification]
- Part 49: Morphological profile filters: Scale space techniques [Technical Specification]
- Part 60: Linear areal filters — Basic concepts
- Part 61: Linear areal filters — Gaussian filters
- Part 71: Robust areal filters: Gaussian regression filters

— *Part 85: Areal Morphological: 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 42: Morphological profile filters: Motif filters*
- *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 82: Morphological areal filters: Motif filters*
- *Part 89: Morphological areal filters: Scale space techniques*

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

[SIST EN ISO 16610-71:2014](https://standards.iteh.ai/catalog/standards/sist/86270aff-f82d-448f-8457-f854b78885c7/sist-en-iso-16610-71-2014)

<https://standards.iteh.ai/catalog/standards/sist/86270aff-f82d-448f-8457-f854b78885c7/sist-en-iso-16610-71-2014>

## ISO 16610-71:2014(E)

### Introduction

This part of ISO 16610 is a Geometrical Product Specification (GPS) standard and is to be regarded as a Global GPS standard (see ISO/TR 14638). It influences the chain links 3 and 5 of all chains of standards.

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 this document to the GPS matrix model, see [Annex C](#).

This part of ISO 16610 specifies the metrological characteristics of robust areal Gaussian regression filters, for the rotationally symmetric filtration of nominal planar surfaces and the filtration of nominal cylindrical surfaces.

The filter is insensitive against specific phenomena in the input data (e.g. spike discontinuities as well as deep valleys and high peaks, etc.). The boundaries of the measured surface are still usable.

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

[SIST EN ISO 16610-71:2014](#)

<https://standards.iteh.ai/catalog/standards/sist/86270aff-f82d-448f-8457-f854b78885c7/sist-en-iso-16610-71-2014>