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

Part 49:
**Morphological profile filters: Scale space
techniques**

Spécification géométrique des produits (GPS) — Filtrage —

*Partie 49: Filtres de profil morphologiques: Techniques d'analyse par
espace d'échelle*



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Contents

Page

Foreword	iv
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 General scale space background	2
4.1 General	2
4.2 Size and anti-size distributions	3
4.3 Alternating symmetrical filters	3
4.4 Nested mathematical models	4
5 Recommendations	5
5.1 Circular disk structuring element	5
5.2 Horizontal line structuring element	5
5.3 Default scale space technique	5
6 Filter designation	5
Annex A (informative) Illustrative examples of scale space	6
Annex B (informative) Concept diagram	14
Annex C (informative) Relationship to the filtration matrix model	15
Annex D (informative) Relationship to the GPS matrix model	16
Bibliography	17

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of normative document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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.

ISO/TS 16610-49 was prepared by Technical Committee ISO/TC 213, *Dimensional and geometrical product specifications and verification*.

ISO/TS 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 22: Linear profile filters: Spline filters*
- *Part 29: Linear profile filters: Spline wavelets*
- *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*

The following parts are under preparation:

- *Part 21: Linear profile filters: Gaussian filters*
- *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 30: Robust profile filters: Basic concepts*
- *Part 42: Morphological profile filters: Motif filters*
- *Part 60: Linear areal filters: Basic concepts*
- *Part 61: Linear areal filters: Gaussian filters*
- *Part 62: Linear areal filters: Spline filters*
- *Part 69: Linear areal filters: Spline wavelets*
- *Part 70: Robust areal filters: Basic concepts*
- *Part 71: Robust areal filters: Gaussian regression filters*
- *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*

Introduction

This part of ISO/TS 16610 is a geometrical product specification (GPS) Technical Specification and is to be regarded as a global GPS Technical Specification (see ISO/TR 14638). It influences the chain links 3 and 5 of all chains of standards

For more detailed information of the relation about this part of ISO/TS 16610 to the GPS matrix model, see Annex D.

This part of ISO/TS 16610 develops the terminology and concepts for morphological scale space techniques.

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Geometrical product specifications (GPS) — Filtration —

Part 49:

Morphological profile filters: Scale space techniques

1 Scope

This part of ISO/TS 16610 specifies morphological scale space techniques. The basic terminology for scale space techniques is given together with their usage.

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/TS 16610-1:2006, *Geometrical Product Specification (GPS) — Filtration — Part 1: Overview and basic terminology*

ISO/TS 16610-40:2006, *Geometrical product specifications (GPS) — Filtration — Part 40: Morphological profile filters: Basic concepts*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/TS 16610-1 and ISO/TS 16610-40 and the following apply.

3.1

size distribution

indexed family of **openings** (3.1.1) which satisfies the **sieve criterion** (3.3)

3.1.1

opening

⟨morphological filters⟩ morphological operation obtained by applying the erosion followed by the dilation

NOTE An opening is both a morphological filter and one of the two basic building blocks for other morphological filters.

[ISO/TS 16610-40:2006]

3.2

anti-size distribution

indexed family of **closings** (3.2.1) which satisfies the **sieve criterion** (3.3)

[ISO/TS 16610-1:2006]

3.2.1

closing

⟨morphological filters⟩ morphological operation obtained by applying the dilation followed by the erosion

NOTE A closing is both a morphological filter and one of the two basic building blocks for other morphological filters.

[ISO/TS 16610-40:2006]