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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 26958.30-2025

Replacing GB/Z 26958.30-2017

**Geometrical product specifications (GPS) - Filtration - Part 30:
Robust profile filters: Basic concepts**

产品几何技术规范（GPS）滤波 第30部分：稳健轮廓滤波器：基本概念
(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is part 30 of GB/T 26958 "Product Geometry Technical Specification (GPS) Filtering". GB/T 26958 has been published the following parts.

- 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 and spline filters;
- Part 28: Profile filter end effects;
- Part 29: Linear profile filter wavelets;
- Part 30: Robust contour filters. Basic concepts;
- Part 31: Robust contour filters Gaussian regression filters;
- Part 32: Robust contour filters and spline filters;
- Part 40: Basic concepts of morphological contour filters;
- Part 41: Morphological contour filters, disk and horizontal line segment filters;

- Part 49: Morphological contour filter scale space technique;
- Part 60: Basic concepts of linear area filters;
- Part 61: Linear area filters Gaussian filters;
- Part 71: Robust regional filter Gaussian regression filter;
- Part 85: Morphological region filter segmentation.

This document replaces GB/Z 26958.30-2017 "Product Geometry Technical Specification (GPS) Filtering Part 30: Robust Profile Filtering" Compared with GB/Z 26958.30-2017, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- The nature of the standard is changed from a guiding technical document to a recommended national standard;
- Changed the term and definition of "spike discontinuity" (see 3.2.3, 3.2.3 of the 2017 edition);
- Changed the terminology and definition of "statistical estimator" (see 3.4, 3.4 of the 2017 edition);
- Changed the terminology and definition of "robust statistical estimator" (see 3.4.1, 3.4.1 of the 2017 edition);
- Changed the terminology and definition of "M estimator" (see 3.5, 3.5 of the 2017 edition);
- Changed the terminology and definition of "Bayesian estimator" (see 3.6, 3.6 of the 2017 edition).

This document is equivalent to ISO 16610-30:2015 "Geometric Product Specification (GPS) Filtering Part 30: Robust Profile Filtering" Instruments. Basic Concepts.

Introduction

In the process of analyzing the surface roughness characteristic information of the product, the filter model, filter parameters, filter transmission characteristics, There is no consistent standard specification for the separation, extraction and reconstruction of the long-wave and short-wave components of the surface profile, and the treatment of the end effect.

The concept of GPS consistency standard is in line with the requirements. The focus is on the processing technology and filtering of surface roughness characteristic information with Gaussian statistical distribution.

Method, a surface morphology roughness filtering specification system for the new generation of GPS is constructed.

GB/T 26958 "Product Geometry Technical Specification (GPS) Filter" is based on the new generation of GPS product geometry specification system, providing a complete set of filtering operation tools, used together with other operation tools to ensure the smooth and reasonable progress of product specification and certification. Filtering is widely used in the measurement and analysis of surface morphology, it has become an important analytical tool for existing surface morphology measurement instruments. The formulation and implementation of GB/T 26958 has provided a new reference for the manufacture of the measurement and analysis of surface morphology information in the field provides unified normative support for the development and application standardization of related instruments.

To improve the diversified surface morphology analysis tools and enhance the quality, performance and international competitiveness of corporate products.

GB/T 26958 is intended to consist of 16 parts.

--- Part 1: Overview and basic concepts. Aims to define the basic terms of GPS filtering and the basic process used by GPS filtering frame.

--- Part 20: Linear profile filters. Basic concepts. Aims to specify the basic concepts of linear profile filters.

--- Part 21: Linear profile filters Gaussian filters. Aims to specify the metrological characteristics of Gaussian filters for profile filtering.

A method for separating the long-wave and short-wave components of surface profiles is given.

--- Part 22: Linear profile filter spline filter. Aims to specify spline filters for profile filtering, with particular reference to How to separate the long-wave and short-wave components of a contour.

--- Part 28: Profile filter end effects. Aims to give a method for dealing with the end effects of linear profile filters.

--- Part 29: Linear contour filter wavelets. Aims to specify spline wavelets and related concepts for contour filtering and give Basic terminology and applications of compactly supported spline wavelets.

--- Part 30: Robust contour filter. Basic concepts. Aims to specify the basic concepts of robust contour filter.

--- Part 31: Robust profile filter Gaussian regression filter. Aims to specify the discrete robust Gaussian regression filter characteristic.

--- Part 32: Robust contour filter spline filter. Aims to specify the characteristics of robust spline filters applicable to surface contours.

properties, and a detailed method for separating the long-wave and short-wave components of the surface profile.

--- Part 40: Basic concepts of morphological contour filters. Aims to specify morphological operations and filters, including envelope filters Basic terms and concepts.

--- Part 41: Morphological contour filters, disk and horizontal line segment filters. Aims to specify the use of disk and horizontal line segment to construct elements Techniques for computing morphological filters including envelope filters.

--- Part 49: Morphological contour filter scale space technique. Aims to specify the morphological scale space technique and give the scale space Basic terminology of inter-technology and its usage.

--- Part 60: Basic concepts of linear area filters. Aims to specify the basic concepts of linear area filters.

--- Part 61: Linear region filter Gaussian filter. Aims to specify the linear region Gaussian filter, in particular how to Separates the long-wave and short-wave components of the surface.

--- Part 71: Robust regional filter Gaussian regression filter. Aims to specify the characteristics of the robust regional Gaussian regression filter in particular, methods for separating the large-scale and small-scale lateral components of a surface are used.

--- Part 85: Morphological region filter segmentation. Aims to establish terms and concepts related to region morphological segmentation. Assume that Continuous surfaces, in particular the watershed segmentation algorithm and the Wolfe pruning algorithm are described.

Geometric Product Specification (GPS) Filtering Part 30: Robust contour filters. basic concepts

1 Scope

This document defines the basic concepts of robust contour filters.

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document.

ISO 16610-1 Geometrical product specifications (GPS) filtering Part 1: Overview and basic