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BSI Standards Publication

Geometrical product specifications (GPS) — Surface texture: Profile method — Flowchart for *PSm*, *RSm*, *WSm* and *Pc*, *Rc*, *Wc*

bsi.

National foreword

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Contents

Page

Foreword ..... **iv**
Introduction ..... **v**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
3.1 General terms 1
3.2 Surface profile parameters 3
4 Flowchart for parameters *PSm*, *RSm*, *WSm* and *Pc*, *Rc*, *Wc* **6**
4.1 General 6
4.2 Part one — Calculation of peaks and valleys within the evaluation length 7
4.3 Part two — Peak height discrimination and valley depth discrimination 8
4.4 Part three — Merging of remaining peaks and valleys 9
4.5 Part four — Calculation of roughness parameters *XSm* and *Xc* 10
Bibliography **11**

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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).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 213, *Dimensional and geometrical product specifications and verification*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

Feature characterization of rough surfaces is of growing interest in terms of a function-oriented description of technical surfaces. A well-known set of feature parameters is the mean width and mean height of profile elements defined in ISO 4287. Unfortunately, the definition given in ISO 4287 is insufficient for an unambiguous implementation in a high-level programming language. Due to the lack of a flowchart, results given by different software packages are not comparable. The main intention of this document is to provide an unambiguous algorithm for feature parameters PSm, RSm, WSm and Pc, Rc, Wc according to ISO 4287.

The flowchart defined in this document was developed by Seewig and Scott[5] and represents an extension of crossing the line segmentation proposed by Scott[4]. The flowchart is based on new knowledge gathered over the past 10 years.

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TECHNICAL REPORT **ISO/TR 23276:2020**

Geometrical product specifications (GPS) — Surface texture: Profile method — Flowchart for *PSm*, *RSm*, *WSm* and *Pc*, *Rc*, *Wc*

1 Scope

This document provides an unambiguous calculation of parameters *PSm*, *RSm*, *WSm* and *Pc*, *Rc*, *Wc*, as defined in ISO 4287, by means of a flowchart.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1 General terms

3.1.1
profile
set of ordered pairs (x,z) which describe the intersection of a surface with a specified plane

Note 1 to entry: For every point x on the X-axis, there is exactly one ordinate z. The relation between x and z is given by a formula $z=f(x)$.

Note 2 to entry: Usually profiles have value pairs (x,z) above and below the X-axis.

Note 3 to entry: In surface metrology three profiles are defined. The primary profile, the roughness profile and the waviness profile. Each profile corresponds to a specific lateral scale.

3.1.2
evaluation length
lm
length in the direction of the X-axis used for assessing the profile under evaluation

[SOURCE: ISO 4287:1997, 3.1.10, modified — symbol changed from *ln* and notes to entry removed.]

3.1.3
profile peak
outwardly directed (from material to surrounding medium) portion of the assessed profile connecting two adjacent intersection points of the profile and the X-axis

3.1.4
profile peak height
normal distance between the X-axis and the highest ordinate of the profile peak

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