INTERNATIONAL STANDARD

**ISO 13565-3**

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# Geometrical Product Specifications (GPS) — Surface texture: Profile method; Surfaces having stratified functional properties —

## Part 3:
Height characterization using the material probability curve

*Spécification géométrique des produits (GPS) — État de surface: Méthode du profil; surfaces ayant des propriétés fonctionnelles différentes suivant les niveaux —*

*Partie 3: Cartactérisation des hauteurs par la courbe de probabilité de matière*

Reference number
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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.

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.

International Standard ISO 13565-3 was prepared by Technical Committee ISO/TC 213, *Dimensional and geometrical product specifications and verification.*

ISO 13565 consists of the following parts under the general title *Geometrical product specifications (GPS) — Surface texture: Profile method; Surfaces having stratified functional properties*:

— *Part 1: Filtering and general measurement conditions*

— *Part 2: Height characterization using the linear material ratio curve*

— *Part 3: Height characterization using the material probability curve*

Annex A forms an integral part of this part of ISO 13565. Annexes B to F are for information only.

## Introduction

This part of ISO 13565 is a geometrical product specification (GPS) standard and is to be regarded as a general GPS standard (see ISO/TR 14638). It influences the chain link 2 of the chains of standards on roughness profile and primary profile.

For more detailed information on the relation of this standard to the GPS matrix model see annex E.

This part of ISO 13565 provides a numerical characterization of surfaces consisting of two vertical random components, namely, a relatively coarse "valley" texture and a finer "plateau" texture. This type of surface is used for lubricated, sliding contact, for example in cylinder liners and fuel injectors. The calculations necessary to determine the parameters *Rpq*, *Rvq*, and *Rmq* (*Ppq*, *Pvq*, and *Pmq*) used to characterize these two components separately involves the generation of the material probability curve, the determination of its linear regions, and the linear regressions through these regions.

The parameters are undefined for surfaces not consisting of two such components.

# Geometrical Product Specifications (GPS) — Surface texture: Profile method; Surfaces having stratified functional properties —

# Part 3:
Height characterization using the material probability curve



## 1 Scope

This part of ISO 13565 establishes the evaluation process for determining parameters from the linear regions of the material probability curve, which is the Gaussian representation of the material ratio curve. The parameters are intended to aid in assessing tribological behaviour, for example of lubricated, sliding surfaces, and to control the manufacturing process.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 13565. At the time of publication, the editions indicated were valid. All Standards are subject to revision, and parties to agreements based on this part of ISO 13565 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1302:1992, *Technical drawings — Methods of indicating surface texture.*

ISO 3274:1996, *Geometrical Product Specifications (GPS) — Surface texture: Profile method — Nominal characteristics of contact (stylus) instruments.*

ISO 4287:1997, *Geometrical Product Specifications (GPS) — Surface texture: Profile method — Terms, definitions and surface texture parameters.*

ISO 13565-1:1996, *Geometrical Product Specifications (GPS) — Surface texture: Profile method; Surfaces having stratified functional properties — Part 1: Filtering and general measurement conditions.*

ISO 13565-2:1996, *Geometrical Product Specifications (GPS) — Surface Texture: Profile method; Surfaces having stratified functional properties — Part 2: Height characterization using the linear material ratio curve.*

## 3 Definitions

For the purposes of this part of ISO 13565, the definitions given in ISO 3274, ISO 4287, ISO 13565-2 and the following apply.

**3.1**
**material probability curve**
a representation of the material ratio curve in which the profile material length ratio is expressed as Gaussian probability in standard deviation values, plotted linearly on the horizontal axis

NOTE — This scale is expressed linearly in standard deviations according to the Gaussian distribution. In this scale the material ratio curve of a Gaussian distribution becomes a straight line. For stratified surfaces composed of two Gaussian distributions, the material probability curve will exhibit two linear regions (see 1 and 2 in figure 1).