

Code of inspection practice —

Part 4: Recommendations relative to surface texture and tooth contact pattern checking

ICS 21.200

National foreword

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A list of organizations represented on MCE/5 can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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TECHNICAL REPORT

ISO/TR 10064-4

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Code of inspection practice

Part 4: Recommendations relative to surface texture and tooth contact pattern checking

Engrenages cylindriques — Code pratique de réception —

*Partie 4: Recommandations relatives à la rugosité de surface et au contrôle
de la marque de portée*



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Descriptors: Gears, cylindrical gears, teeth (mechanics), inspection, inspection by measurements, texture, roughness, roughness measurement, dimensional deviations, codes of good practice.

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 main task of technical committees is to prepare International Standards, but in exceptional circumstances a technical committee may propose the publication of a Technical Report of one of the following types:

- type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;
- type 2, when the subject is still under technical development or where for any other reason there is a future but not immediate possibility of an agreement on an International Standard;
- type 3, when a technical committee has collected data of a different kind from that which is normally published as an International Standard (“state of the art”, for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

ISO/TR 10064-4, which is a Technical Report of type 3, was prepared by Technical Committee ISO/TC 60, *Gears*.

ISO 10064, consists of the following parts, under the general title *Code of inspection practice*:

- *Part 1: Inspection of corresponding flanks of gear teeth;*
- *Part 2: Inspection related to radial composite deviations, runout, tooth thickness and backlash;*
- *Part 3: Recommendations relative to gear blanks, shaft centre distance and parallelism of axes;*
- *Part 4: Recommendations relative to surface texture and tooth contact pattern checking.*

Introduction

In the course of revising ISO 1328:1975, it was decided that descriptions and numerical values relative to surface texture and tooth contact pattern checking should be published under separate cover as a Technical Report, type 3. For the general replacement of ISO 1328:1975, a system of documents as listed in clause 2 (References), together with this Technical Report, has been established.

1 Scope

This part of ISO/TR 10064 provides recommendations on measurement considerations for surface roughness and tooth contact pattern checking of gear flanks.

Numerical values given in this document are not to be regarded as strict ISO accuracy criteria, but may serve as a guide for mutual agreements, for steel or iron components.

2 References

ISO 53:1998, *Cylindrical gears for general and heavy engineering — Standard basic rack tooth profile*.

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

ISO 1328-1:1995, *Cylindrical gears — ISO System of accuracy — Part 1: Definitions and allowable values of deviations relevant to corresponding flanks of gear teeth*.

ISO 1328-2:1996, *Cylindrical gears — ISO System of accuracy — Part 2: Definitions and allowable values of deviations relevant to radial composite deviations and runout*.

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 4288:1996, *Geometrical Product Specifications (GPS) — Surface texture: Profile method — Rules and procedures for the assessment of surface texture*.

ISO 11562:1996, *Geometrical Product Specifications (GPS) — Surface texture: Profile method — Metrological characteristics of phase correct filters*.

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 Symbols and definitions

3.1 Symbols

symbols used for deviations of individual element measurements are composed of lower case letters, such as “*f*”, with subscripts, whereas symbols used for “total” deviations, which may represent combinations of several individual element deviations, are composed of capital letters, such as “*F*”, also with subscripts. Only symbols for quantities used in this part of ISO/TR 10064 are given in Table 1.

3.2 Terms and definitions

3.2.1 General terms

3.2.1.1

surface lay

the direction of the predominant surface pattern (see Figure 1a)

NOTE Surface lay is ordinarily determined by the production method used.

3.2.1.2

roughness

the irregularities of the roughness profile (see 3.2.2.1). It is the component of surface texture inherent in the production process but excluding waviness and deviation of form

3.2.1.3

waviness

the irregularities of the waviness profile (see 3.2.2.2). That component of surface texture upon which roughness is superimposed (see Figure 1a, Figure 1b, Figure 1c). In general, for machined gear tooth surfaces the waviness spacing is significantly greater than the roughness spacing