

# INTERNATIONAL STANDARD

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## **General tolerances —**

### **Part 2:**

Geometrical tolerances for features without individual  
tolerance indications

*Tolérances générales —*

*Partie 2: Tolérances géométriques pour éléments non affectés de tolérances  
individuelles*



Reference number  
ISO 2768-2 : 1989 (E)

## 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 approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 2768-2 was prepared by Technical Committee ISO/TC 3, *Limits and fits*.

This first edition of ISO 2768-2, together with ISO 2768-1 : 1989, cancel and replace ISO 2768 : 1973.

ISO 2768 consists of the following parts, under the general title *General tolerances*:

- *Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*
- *Part 2: Geometrical tolerances for features without individual tolerance indications*

Annexes A and B of this part of ISO 2768 are for information only.

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## Introduction

All features on component parts always have a size and a geometrical shape. For the deviation of size and for the deviations of the geometrical characteristics (form, orientation and location) the function of the part requires limitations which, when exceeded, impair this function.

The tolerancing on the drawing should be complete to ensure that the elements of size and geometry of all features are controlled, i.e. nothing shall be implied or left to judgement in the workshop or in the inspection department.

The use of general tolerances for size and geometry simplifies the task of ensuring that this prerequisite is met.

## General tolerances —

### Part 2: Geometrical tolerances for features without individual tolerance indications

#### 1 Scope

This part of ISO 2768 is intended to simplify drawing indications and specifies general geometrical tolerances to control those features on the drawing which have no respective individual indication. It specifies general geometrical tolerances in three tolerance classes.

This part of ISO 2768 mainly applies to features which are produced by removal of material. Its application to features manufactured by other processes is possible; however, special examination is required to ascertain whether the customary workshop accuracy lies within the general geometrical tolerances specified in this part of ISO 2768.

#### 2 General

When selecting the tolerance class, the respective customary workshop accuracy has to be taken into consideration. If smaller geometrical tolerances are required or larger geometrical tolerances are permissible and more economical for any individual feature, such tolerances should be indicated directly in accordance with ISO 1101 (see clause A.2).

General geometrical tolerances in accordance with this part of ISO 2768 apply when drawings or associated specifications refer to this part of ISO 2768 in accordance with clause 6. They apply to features which do not have respective individual geometrical tolerance indications.

General geometrical tolerances apply to all geometrical tolerance characteristics, excluding cylindricity, profile of any line, profile of any surface, angularity, coaxiality, positional tolerances and total run-out.

In any event, general geometrical tolerances in accordance with this part of ISO 2768 should be used when the fundamental tolerancing principle in accordance with ISO 8015 is used and indicated on the drawing (see clause B.1).

#### 3 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of

ISO 2768. 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 2768 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 1101 : 1983, *Technical drawings — Geometrical tolerancing — Tolerancing of form, orientation, location and run-out — Generalities, definitions, symbols, indications on drawings*.

ISO 2768-1 : 1989, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*.

ISO 5459 : 1981, *Technical drawings — Geometrical tolerancing — Datums and datum-systems for geometrical tolerances*.

ISO 8015 : 1985, *Technical drawings — Fundamental tolerancing principle*.

#### 4 Definitions

For the purposes of this part of ISO 2768, the definitions for geometrical tolerances given in ISO 1101 and ISO 5459 apply.

#### 5 General geometrical tolerances (see also clause B.1)

##### 5.1 Tolerances for single features

###### 5.1.1 Straightness and flatness

The general tolerances on straightness and flatness are given in table 1. When a tolerance is selected from table 1, it shall be based, in the case of straightness, on the length of the corresponding line and, in the case of flatness, on the longer lateral length of the surface, or the diameter of the circular surface.