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STANDARD **2768-1**

First edition
1989-11-15

General tolerances —

Part 1 :
Tolerances for linear and angular dimensions without individual tolerance indications

Tolérances générales —

Partie 1 : Tolérances pour dimensions linéaires et angulaires non affectées de tolérances individuelles

Reference number
ISO 2768-1 : 1989 (E)

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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 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 2768-1 was prepared by Technical Committee ISO/TC 3, *Limits and fits*.

This first edition of ISO 2768-1, together with ISO 2768-2 : 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*

Annex A of this part of ISO 2768 is 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.

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General tolerances —

Part 1: Tolerances for linear and angular dimensions without individual tolerance indications

1 Scope

This part of ISO 2768 is intended to simplify drawing indications and it specifies general tolerances for linear and angular dimensions without individual tolerance indications in four tolerance classes.

NOTE 1 — The concepts behind the general tolerancing of linear and angular dimensions are described in annex A.

It applies to the dimensions of parts that are produced by metal removal or parts that are formed from sheet metal.

NOTES

2 These tolerances may be suitable for use with materials other than metal.

3 Parallel International Standards exist or are planned, e.g. see ISO 8062[1] for castings.

This part of ISO 2768 only applies for the following dimensions which do not have an individual tolerance indication:

a) linear dimensions (e.g. external sizes, internal sizes, step sizes, diameters, radii, distances, external radii and chamfer heights for broken edges);

b) angular dimensions, including angular dimensions usually not indicated, e.g. right angles (90°), unless reference to ISO 2768-2 is made, or angles of uniform polygons;

c) linear and angular dimensions produced by machining assembled parts.

It does not apply for the following dimensions:

a) linear and angular dimensions which are covered by reference to other standards on general tolerances;

b) auxiliary dimensions indicated in brackets;

c) theoretically exact dimensions indicated in rectangular frames.

2 General

When selecting the tolerance class, the respective customary workshop accuracy has to be taken into consideration. If smaller tolerances are required or larger tolerances are permissible and more economical for any individual feature, such tolerances should be indicated adjacent to the relevant nominal dimension(s).

General tolerances for linear and angular dimensions apply when drawings or associated specifications refer to this part of ISO 2768 in accordance with clauses 4 and 5. If there are general tolerances for other processes, as specified in other International Standards, reference shall be made to them on the drawings or associated specifications. For a dimension between an unfinished and a finished surface, e.g. of cast or forged parts, for which no individual tolerance is directly indicated, the larger of the two general tolerances in question applies, e.g. for castings, see ISO 8062[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 2768-2 : 1989, *General tolerances — Part 2: Geometrical tolerances for features without individual tolerance indications.*

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

4 General tolerances

4.1 Linear dimensions

General tolerances for linear dimensions are given in tables 1 and 2.

1) ISO 8062 : 1984, *Castings — System of dimensional tolerances.*