

INTERNATIONAL STANDARD

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Second edition
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Geometrical Product Specifications (GPS) — Geometrical tolerancing — Positional tolerancing

*Spécification géométrique des produits (GPS) — Tolérancement
géométrique — Tolérancement de localisation*



Reference number
ISO 5458:1998(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 voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 5458 was prepared by Technical Committee ISO/TC 213, *Dimensional and geometrical product specifications and verification*.

This second edition cancels and replaces the first edition (ISO 5458:1987), which has been technically revised.

Annexes A, B, C and D of this International Standard are for information only.

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Introduction

This International Standard is a geometrical product specification (GPS) standard and is to be regarded as a general GPS standard (see ISO/TR 14638). It influences chain links 1 and 2 of the chain of standards on location.

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

This International Standard is intended to promote the relationship between the designer and the manufacturer.

The concept of positional tolerancing, as described in ISO 1101, is further elaborated in this International Standard.

The figures in this International Standard serve to illustrate the subject matter only and are not necessarily complete.

Other relevant International Standards, such as those dealing with the maximum material requirement (ISO 2692), datums and datum systems (ISO 5459), should be taken into consideration when using this International Standard.

For the purposes of this International Standard, all dimensions and tolerances on the drawings have been shown in vertical lettering. It should be understood that these indications could just as well be written in free-hand or inclined (italic) lettering without altering the meaning of the indications.

For the presentation of lettering (proportions and dimensions), see ISO 3098-1.

Geometrical Product Specifications (GPS) — Geometrical tolerancing — Positional tolerancing

1 Scope

This International Standard describes positional tolerancing. This tolerancing method is applied to the location of a point, of a line nominally straight and of a surface nominally plane, e.g. the centre of a sphere, the axis of a hole or shaft and the median surface of a slot.

NOTE Profile tolerancing is used when lines are not intended to be straight or surfaces are not intended to lie in a plane; see ISO 1660.

2 Normative reference

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

ISO 1101:—¹⁾, *Geometrical Product Specifications (GPS) — Geometrical tolerancing — Generalities, definitions, symbols, indication on drawings*.

3 Definitions

Definitions related to features are under development and will be issued as ISO 14660-1. This work will result in new terms that are different from those used in this International Standard. These new terms are defined in annex A and appear in the main body of this International Standard in parentheses next to the currently used term .

4 Establishment of positional tolerances

4.1 General

The primary constituents are theoretically exact dimensions, tolerance zones and datums.

4.2 Fundamental requirement

Positional tolerances are associated with theoretically exact dimensions and define the limits for the location of actual (extracted) features, such as points, axes, median surfaces, nominally straight lines and nominally plane surfaces relative to each other or in relation to one or more datums. The tolerance zone is symmetrically disposed about the theoretically exact location.

¹⁾ To be published. (Revision of ISO 1101:1983)

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