# INTERNATIONAL STANDARD

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# Geometrical product specifications (GPS) — Dimensional and geometrical tolerances for moulded parts —

Part 3:

General dimensional and geometrical tolerances and machining allowances for castings

Spécification géométrique des produits (GPS) — Tolérances dimensionnelles et géométriques des pièces moulées —

Partie 3: Tolérances dimensionnelles et géométriques générales et surépaisseurs d'usinage pour les pièces moulées



Reference number ISO 8062-3:2007(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 Maison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical convertues is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires applying by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 8062-3 was prepared by Technical Committee ISO/TC 213, Dimensional and geometrical product specifications and verification.

This first edition of ISO 8062-3, together with ISQ 8062-1 and ISO/TS 8062-2, cancels and replaces ISO 8062:1994, of which it constitutes a technical revision.

ISO 8062 consists of the following parts, under the general title Geometrical product specifications (GPS) — Dimensional and geometrical tolerances for moulded parts.

Part 1: Vocabulary

Part 3: General dimensional and geometrical tolerances and machining allowances for castings retated by FLS

Rules is to form the subject of a future Part 2 [Technical Specification]

### Introduction

This part of ISO 8062 is a geometrical product specification (GPS) standard and is to be regarded as a complementary process-specific tolerance standard (see ISO/TR 14638). It influences chain link 2 of the chain of standards on mouldings.

For more detailed information about the relation of this part of ISO 8062 to other standards and the GPS matrix model, see Annex F.

This part of ISO 8062 defines a system of tolerance grades and machining allowance grades for cast metals and their alloys.

The specified system apples if the manufacturer provides a pattern or die equipment, or accepts responsibility for proving it.

The tolerances specified for a casing may determine the casting method. It is therefore recommended, before the design or the order is finalized, that the customer liaise with the foundry to discuss:

- a) the proposed casting design and accuracy required;
- b) machining requirements;
- c) the method of casting;
- d) the location of the parting surfaces and the necessary draft angles;
- e) the number of castings to be manufactured;
- f) the casting equipment involved;
- g) the consequences of the wear-out of the equipment during its life cycle;
- h) the datum system in accordance with ISO 5459;
- i) the casting alloy;
- j) any special requirements, e.g. individual dimensional and geometricat tolerances, fillet radii, tolerances and individual machining allowances;

NOTE Because the dimensional and geometrical accuracy of a casting is related to production factors, tolerance grades which can be achieved for various methods and metals are described in Annex A.

- k) dimensional tolerances for long series and mass production, where development, adjustment and maintenance of casting equipment make it possible to achieve close tolerances;
- I) dimensional tolerances for short series and single production;
- m) geometrical tolerances.

Information on typical required machining allowance grades is given in Annex B.

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# Geometrical product specifications (GPS) — Dimensional and geometrical tolerances for moulded parts -

### Part 3:

# General dimensional and geometrical tolerances and machining allowances for castings

### Scope 1

This part of ISO 8062 specifies general dimensional and geometrical tolerances, as well as machining allowance grades, for castings as delivered to the purchaser in accordance with ISO 8062-2. It is applicable for the tolerancing of dimensions and geometry, and required machining allowance of castings in all cast metals and their alloys produced by various casting manufacturing processes.

This part of ISO 8062 applies to both general dimensional and general geometrical tolerances (referred to in or near the title block of the drawing), unless otherwise specified, and where specifically referred to on the drawing by one of the references in Claus

The dimensional tolerances covered by this part of ISO 8062 are tolerances for linear dimensions.

The geometrical tolerances covered by this part of SQ 8062 are:

- tolerances for straightness,
- flatness.
- roundness.
- parallelism,
- perpendicularity,
- symmetry, and
- coaxiality.

- Oenerated by adi This part of ISO 8062 can be used for the selection of tolerance values for individual indications.

This part of ISO 8062 does not apply to 3D CAD models used without indicated at NOTE iensions.

### 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 286-1:1988, ISO system of limits and fits — Part 1: Bases of tolerances, deviations and fits

ISO 1101:2004, Geometrical Product Specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out

ISO 1302:2002, Geometrical Product Specifications (GPS) — Indication of surface texture in technical product documentation

ISO 5459:—<sup>1)</sup>, Geometrical product specifications (GPS) — Geometrical tolerancing — Datums and datumsystems

ISO 8062-1:2007, Geometrical product specifications (GPS) — Dimensional and geometrical tolerances for moulded parts — Part 1: Vocabulary

ISO/TS 8062-2:—<sup>2)</sup>, Geometrical product specifications (GPS) — Dimensional and geometrical tolerances for moulded parts — Part 2: Rules

ISO 10135:—<sup>3</sup>), Geometrical product specifications (GPS) — Drawing indications for moulded parts in technical product documentation (TPD)

ISO 10579:1993, Technical drawings — Dimensioning and tolerancing — Non-rigid parts

ISO 14405:—<sup>4)</sup>, Geometrical product specifications (GPS) — Dimensional tolerancing — Linear sizes

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 8062-1, ISO 1101 and ISO 5459 apply.

### 4 Abbreviated terms

Abbreviated terms are given in Table 1.

Abbreviated term	Interpretation	Reference
DCT	Dimensional casting tolerance	5.2
DCTG	Dimensional casting tolerance grade	5.2
GCT	Geometrical casting tolerance	5.3
GCTG	Geometrical casting tolerance grade	5.3
RMA	Required machining allowance	Clause 8
RMAG	Required machining allowance grade	Clause 8
TP	Taper +	1 <del>3</del> 0 10135
ТМ	Taper -	ISO 10135
SMI	Surface mismatch	ISO 10135

# Table 1 — Abbreviateetterms

<sup>1)</sup> To be published. Revision of ISO 5459:1981.

<sup>2)</sup> To be published. Revision of ISO 8062:1994.

<sup>3)</sup> To be published. Revision of ISO 10135:1994.

<sup>4)</sup> To be published.