

# SLOVENSKI STANDARD

## SIST EN ISO 8062-3:2007

01-julij-2007

Nadomešča:  
SIST ISO 8062:1995

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### Specifikacije geometrijskih izdelkov - Dimenzijske in geometrijske tolerance zaformanih delov – 3. del: Splošne dimenzijske in geometrijske tolerance in dodatki za obdelavo ulitkov (ISO 8062-3:2007)

Geometrical Product Specifications (GPS) - Dimensional and geometrical tolerances for moulded parts - Part 3: General dimensional and geometrical tolerances and machining allowances for castings (ISO 8062-3:2007)

Geometrische Produktspezifikation (GPS) - Maß-, Form- und Lagetoleranzen für Formteile - Teil 3: Allgemeine Maß-, Form- und Lagetoleranzen und Bearbeitungszugaben für Gussstücke (ISO 8062-3:2007)

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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 (ISO 8062-3:2007)

**Ta slovenski standard je istoveten z: EN ISO 8062-3:2007**

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#### **ICS:**

17.040.10	Tolerance in ujemi	Limits and fits
17.040.40	Specifikacija geometrijskih veličin izdelka (GPS)	Geometrical Product Specification (GPS)

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EUROPEAN 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 (ISO 8062-3:2007)**

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 (ISO 8062-3:2007)

Geometrische Produktspezifikation (GPS) - Maß-, Form- und Lagetoleranzen für Formteile - Teil 3: Allgemeine Maß-, Form- und Lagetoleranzen und Bearbeitungszugaben für Gussstücke (ISO 8062-3:2007)

This European Standard was approved by CEN on 25 February 2007.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

**Management Centre: rue de Stassart, 36 B-1050 Brussels**

**EN ISO 8062-3:2007 (E)****Foreword**

This document (EN ISO 8062-3:2007) has been prepared by Technical Committee ISO/TC 213 "Dimensional and geometrical product specifications and verification" in collaboration with Technical Committee CEN/TC 190 "Foundry technology", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2007, and conflicting national standards shall be withdrawn at the latest by December 2007.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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The text of ISO 8062-3:2007 has been approved by CEN as EN ISO 8062-3:2007 without any modifications.

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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****(standards.iteh.ai)***Spécification géométrique des produits (GPS) — Tolérances  
dimensionnelles et géométriques des pièces moulées —**Partie 3: Tolérances dimensionnelles et géométriques générales et  
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## ISO 8062-3:2007(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.

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

The main task of technical committees 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 approval 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 ISO 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*

*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 applies if the manufacturer provides a pattern or die equipment, or accepts responsibility for proving it.

The tolerances specified for a casting 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 geometrical 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;
- l) 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

### 1 Scope

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 Clause 9.

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

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

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

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

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

### 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*

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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 datum-systems*

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**

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Abbreviated terms are given in Table 1.

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**Table 1 — Abbreviated terms**

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 +	ISO 10135
TM	Taper -	ISO 10135
SMI	Surface mismatch	ISO 10135

1) To be published. Revision of ISO 5459:1981.

2) To be published. Revision of ISO 8062:1994.

3) To be published. Revision of ISO 10135:1994.

4) To be published.

## 5 Tolerance grades

### 5.1 General

Individual dimensional and geometrical tolerances shall be indicated in accordance with the relevant GPS standards on dimensional and geometrical tolerancing.

If using general tolerances, the necessity of smaller tolerances (for functional reasons) or of larger tolerances (for economical reasons) needs to be ascertained (see Annex C). In both cases, individual tolerances shall be indicated.

For drawings where the tolerances in accordance with this part of ISO 8062 only apply under specified, restricted conditions, ISO 10579 shall be referred to on the drawing.

### 5.2 Dimensional casting tolerance grades (DCTG)

Sixteen linear dimensional casting tolerance grades are defined and designated as DCTG 1 to DCTG 16 (see Table 2).

NOTE 1 For wall thicknesses, see Clause 7.

**Table 2 — Linear dimensional casting tolerances (DCT)**

Dimensions in millimetres

Nominal dimensions related to the moulded part		Linear dimensional tolerance for dimensional casting tolerance grade (DCTG) <sup>a</sup>															
		DCTG 1	DCTG 2	DCTG 3	DCTG 4	DCTG 5	DCTG 6	DCTG 7	DCTG 8	DCTG 9	DCTG 10	DCTG 11	DCTG 12	DCTG 13	DCTG 14	DCTG 15	DCTG 16 <sup>b</sup>
—	≤ 10	0,09	0,13	0,18	0,26	0,36	0,52	0,74	1	1,5	2	2,8	4,2	—	—	—	—
> 10	≤ 16	0,1	0,14	0,2	0,28	0,38	0,54	0,78	1,1	1,6	2,2	3	4,4	—	—	—	—
> 16	≤ 25	0,11	0,15	0,22	0,3	0,42	0,58	0,82	1,2	1,7	2,4	3,2	4,6	6	8	10	12
> 25	≤ 40	0,12	0,17	0,24	0,32	0,46	0,64	0,9	1,3	1,8	2,6	3,6	5	7	9	11	14
> 40	≤ 63	0,13	0,18	0,26	0,36	0,5	0,7	1	1,4	2	2,8	4	5,6	8	10	12	16
> 63	≤ 100	0,14	0,2	0,28	0,4	0,56	0,78	1,1	1,6	2,2	3,2	4,4	6	9	11	14	18
> 100	≤ 160	0,15	0,22	0,3	0,44	0,62	0,88	1,2	1,8	2,5	3,6	5	7	10	12	16	20
> 160	≤ 250	—	0,24	0,34	0,5	0,7	1	1,4	2	2,8	4	5,6	8	11	14	18	22
> 250	≤ 400	—	—	0,4	0,56	0,78	1,1	1,6	2,2	3,2	4,4	6,2	9	12	16	20	25
> 400	≤ 630	—	—	—	0,64	0,9	1,2	1,8	2,6	3,6	5	7	10	14	18	22	28
> 630	≤ 1 000	—	—	—	—	1	1,4	2	2,8	4	6	8	11	16	20	25	32
> 1 000	≤ 1 600	—	—	—	—	—	1,6	2,2	3,2	4,6	7	9	13	18	23	29	37
> 1 600	≤ 2 500	—	—	—	—	—	—	2,6	3,8	5,4	8	10	15	21	26	33	42
> 2 500	≤ 4 000	—	—	—	—	—	—	—	4,4	6,2	9	12	17	24	30	38	49
> 4 000	≤ 6 300	—	—	—	—	—	—	—	—	7	10	14	20	28	35	44	56
> 6 300	≤ 10 000	—	—	—	—	—	—	—	—	—	11	16	23	32	40	50	64

<sup>a</sup> For wall thicknesses in grades DCTG 1 to DCTG 15, one grade coarser applies (see Clause 7).

<sup>b</sup> Grade DCTG 16 exists only for wall thicknesses of castings generally specified to DCTG 15.

NOTE 2 Annex A gives recommendations for the application of the above tolerance grades.

As the default conditions for the dimensions, the casting tolerance shall be symmetrically disposed with respect to the nominal dimension, i.e. with one half on the positive side and one half on the negative side.