SVENSK STANDARD
SS-ISO 8062-4:2017

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Geometriska produktspecifikationer (GPS) - Dimensionstoleranser och geometriska toleranser för formstycken -
Del 4: Generella toleranser för gjutgods angiven med ytformstolerans till ett referenssystem (ISO 8062-4:2017, IDT)

Geometrical product specifications (GPS) - Dimensional and geometrical tolerances for moulded parts -
Part 4: General tolerances for castings using profile tolerancing in a general datum system (ISO 8062-4:2017, IDT)

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Den internationella standarden ISO 8062-4 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av ISO 8062-4.

The International Standard ISO 8062-4 has the status of a Swedish Standard. This document contains the official version of ISO 8062-4.

Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna upplysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

Denna standard är framtagen av kommittén för Toleranser, SIS/TK 507/AG 05.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 213, *Dimensional and geometrical product specifications and verification.*

A list of all parts in the ISO 8062 series can be found on the ISO website.

Introduction

This document is a geometrical product specification (GPS) standard and is regarded as a complementary process-specific tolerance standard (see ISO 14638). It influences chain link B of the chain of standards on mouldings.

The ISO GPS matrix model given in ISO 14638 gives an overview of the ISO GPS system, of which this document is a part. The fundamental rules of ISO/GPS given in ISO 8015 apply to this document and the default decision rules given in ISO 14253-1 apply to specifications made in accordance with this document, unless otherwise indicated.

For more detailed information about the relation of this document to other standards and the GPS matrix model; see Annex F.

This document defines a system of tolerance grades, draft angle (taper) grades and machining allowance grades for cast metals and their alloys.

ISO/TS 8062-2 states, in relation to the accumulation method where general dimensional tolerances according to ISO 8062-3 are used, that there is not yet a clearly defined way in the context of the future system of GPS standards to apply the rules for calculating of the final moulded part nominal dimensions from the final machined moulded part nominal dimensions, taking into account the miscellaneous influences.

One of the reasons for this problem is the lack of a proper workpiece datum system.

The general dimensional tolerances apply independently from each other (without a datum system). It is difficult or even impossible to assess what the overall shape of the workpiece can become.

The general dimensional tolerances (± tolerances) of ISO 8062-3 apply not only to sizes but also to centre distances and dimensions defining profile contours. This is in contradiction to the GPS rules (e.g. ISO 14405-2).

Furthermore, with 3D CAD, the nominal dimensions are not always visible in the model. As the general dimensional tolerances depend on the nominal dimensions, they cannot be used any more when only the CAD model is available.

For these reasons, the use of ISO 8062-3 from a GPS-point of view cannot be recommended. This document avoids the insufficiencies of ISO 8062-3 described above and is in full compliance with the GPS rules. The general tolerances according to ISO 8062-3 are not comparable with the general tolerances according to this document.

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

Part 4:
General tolerances for castings using profile tolerancing in a general datum system

1 Scope

This document specifies general geometrical tolerances using surface profile tolerances related to a general datum system that remains on the final part. It also specifies machining allowances and draft angles (tapers) for castings in all cast metals and their alloys produced by various casting manufacturing processes.

NOTE When there is no datum system (target or integral) on surfaces remaining in the final condition, this document cannot be applied.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1101, *Geometrical product specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out*

ISO 1660, *Geometrical product specifications (GPS) — Geometrical tolerancing — Profile tolerancing*

ISO 2692, *Geometrical product specifications (GPS) — Geometrical tolerancing — Maximum material requirement (MMR), least material requirement (LMR) and reciprocity requirement (RPR)*

ISO 5458, *Geometrical Product Specifications (GPS) — Geometrical tolerancing — Positional tolerancing*

ISO 5459, *Geometrical product specifications (GPS) — Geometrical tolerancing — Datums and datum systems*

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

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

ISO 10135, *Geometrical product specifications (GPS) — Drawing indications for moulded parts in technical product documentation (TPD)*

ISO 10579, *Geometrical product specifications (GPS) — Dimensioning and tolerancing — Non-rigid parts*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1101, ISO 1660, ISO 2692, ISO 5458, ISO 5459, ISO 8062-1, ISO/TS 8062-2, ISO 10135, ISO 10579 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
draft angle
taper
value of inclination (angle) that is added to a geometrical feature of a pattern or mould to ensure the removal of the pattern or moulded part from the mould

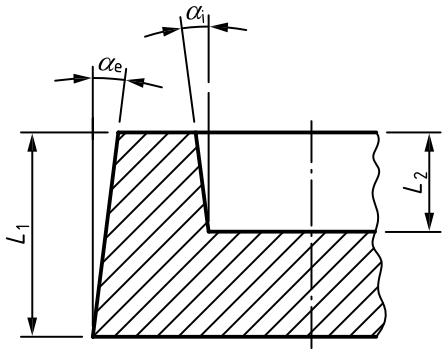
[SOURCE: ISO 8062-1:2007, 2.15, modified]

3.1.1
external draft angle
draft angle (3.1) on a surface that has no opposite surface in the direction outward of the part

Note 1 to entry: See Figure 1.

3.1.2
internal draft angle
draft angle (3.1) on a surface that has an opposite surface in the direction outward of the part

Note 1 to entry: See Figure 1.



Key

α_e external draft angle

α_i internal draft angle

Figure 1 — External and internal draft angles

3.1.3
draft angle increasing the ideal model feature(s)
draft angle (3.1) which is part of the ideal model

Note 1 to entry: See Figure 3 a).

3.1.4
draft angle increasing the tolerance of feature(s)
draft angle (3.1) which is added to the ideal model and included in the tolerance zone

Note 1 to entry: See Figure 3 b).

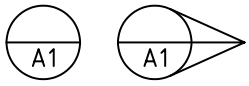
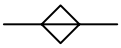
3.2
general datum system RST
datum system according to ISO 5459, using the datum letters R, S, T, locking all degrees of freedom and used for the general tolerance

Note 1 to entry: See Figure D.2.

Note 2 to entry: It is recommended to use a datum target system RST; see Figure D.1.

Note 3 to entry: The datum letters R, S, T, are reserved for the general datum system; see Rule C.

4 Symbols

Symbol	Description		Source
	moulded surface		ISO 1302
	machined surface		
	moulded or machined surface		
	surface profile tolerance		ISO 1101
	positional tolerance		
	theoretically exact dimension		
	datum of datum target		ISO 5459
	datum target, fixed, moveable		
	general tolerance		5.2, 5.3
	parting surface		ISO 10135
	parting surface	moveable	
		fixed	
	draft angle increasing the ideal model feature(s)		ISO 10135
	draft angle increasing the tolerance of feature(s)		5.8
	moulded condition		ISO/TS 8062-2
	intermediate (pre)machined		
	final machined		
	provided by supplier		