

First edition  
2017-07

---

---

# 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

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

*Partie 4: Tolérances générales pour les pièces moulées par  
tolérancement de profil dans un système général de références  
spécifiées*



Reference number  
ISO 8062-4:2017(E)

© ISO 2017

This is a preview of "ISO 8062-4:2017". Click here to purchase the full version from the ANSI store.



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2017, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
copyright@iso.org  
www.iso.org

This is a preview of "ISO 8062-4:2017". Click here to purchase the full version from the ANSI store.

## Contents

	Page
<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>1</b>
<b>4 Symbols</b> .....	<b>3</b>
<b>5 Rules</b> .....	<b>4</b>
5.1 Rule A: Application of general tolerances for castings.....	4
5.2 Rule B: General surface profile tolerances.....	4
5.3 Rule C: General datum system.....	4
5.4 Rule D: Tolerances overruling the general surface profile tolerances.....	4
5.5 Rule E: Additional tolerances.....	5
5.6 Rule F: Machined condition [application case A c)].....	5
5.7 Rule G: Required machining allowances (RMAs).....	5
5.8 Rule H: Draft angle (taper).....	6
<b>6 General tolerances</b> .....	<b>7</b>
<b>7 Required machining allowances</b> .....	<b>9</b>
<b>8 Draft angles (tapers)</b> .....	<b>10</b>
<b>9 General drawing indication</b> .....	<b>12</b>
<b>Annex A (informative) Concept of general tolerancing</b> .....	<b>14</b>
<b>Annex B (informative) Selection of general tolerances</b> .....	<b>16</b>
<b>Annex C (informative) Selection of required machining allowances (RMAs)</b> .....	<b>17</b>
<b>Annex D (informative) Example of using general tolerances</b> .....	<b>18</b>
<b>Annex E (informative) Calculation of the nominal dimension of the moulded condition</b> .....	<b>21</b>
<b>Annex F (informative) Relation to the GPS matrix model</b> .....	<b>24</b>
<b>Bibliography</b> .....	<b>25</b>

## 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](http://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](http://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](http://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.

This is a preview of "ISO 8062-4:2017". [Click here to purchase the full version from the ANSI store.](#)

## 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 ( $\pm$  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.