SLOVENSKI STANDARD
SIST ISO 8062:1995

01-november-1995

Ulitki - Sistem toleranc mer in dodatki za mehansko obdelavo

Castings -- System of dimensional tolerances and machining allowances

Pièces moulées -- Système de tolérances dimensionnelles et surépaisseurs d'usinage

Ta slovenski standard je istoveten z: **ISO 8062:1994**

ICS:

17.040.10 Tolerance in ujemi Limits and fits

SIST ISO 8062:1995 **en**

INTERNATIONAL STANDARD

ISO 8062

Second edition
1994-04-01

Castings — System of dimensional tolerances and machining allowances

Pièces moulées — Système de tolérances dimensionnelles et surépaisseurs d'usinage

Reference number
ISO 8062:1994(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 8062 was prepared by Technical Committee ISO/TC 3, *Limits and fits*.

This second edition cancels and replaces the first edition (ISO 8062:1984), which has been technically revised.

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

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Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Introduction

This International Standard relates to a system of tolerance grades and machining allowance grades for cast metals and their alloys.

The tolerance 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) method of casting;

d) the number of castings to be manufactured;

e) the casting equipment involved;

f) any special requirements, for instance, datum target systems, individual dimensional tolerances, geometrical tolerances, fillet radii tolerances and individual machining allowances;

g) whether any other standard is more appropriate for the casting.

NOTE 1 Further investigation on metallic permanent moulds (gravity- and low-pressure), pressure die castings and investment castings should be carried out.

Because the dimensional 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 for

a) long series and mass production, where development, adjustment and maintenance of casting equipment make it possible to achieve close tolerances;

b) short series and single production.

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

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Castings — System of dimensional tolerances and machining allowances

1 Scope

This International Standard specifies a system of tolerance grades and required machining allowance grades for the dimensions of castings. It is applicable to the dimensions of cast metals and their alloys produced by various casting manufacturing processes [but see also Introduction g) and clause 5].

This International Standard applies both to general tolerances and/or required machining allowances given on a drawing and to individual tolerances and/or required machining allowances which are shown immediately following a specific dimension (see clause 11).

The system specified applies when the foundry provides the pattern or die equipment or accepts responsibility for proving it.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were 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 editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

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

ISO 1302:1992, *Technical drawings — Method of indicating surface texture.*

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 basic dimension: Dimension of a raw casting before machining (see figure 1), the necessary machining allowance being included (see figure 2).

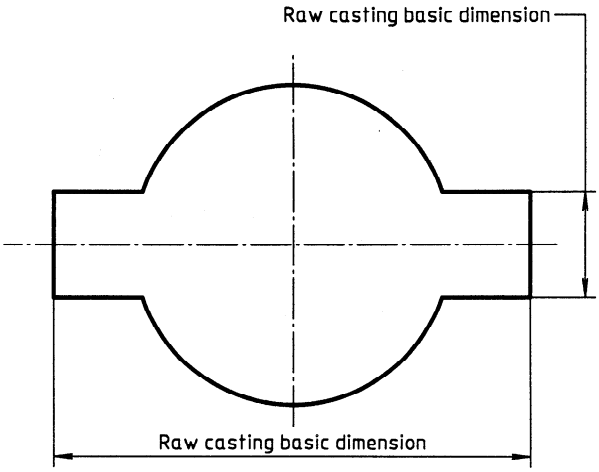

Figure 1 — Drawing indications (see clause 4)

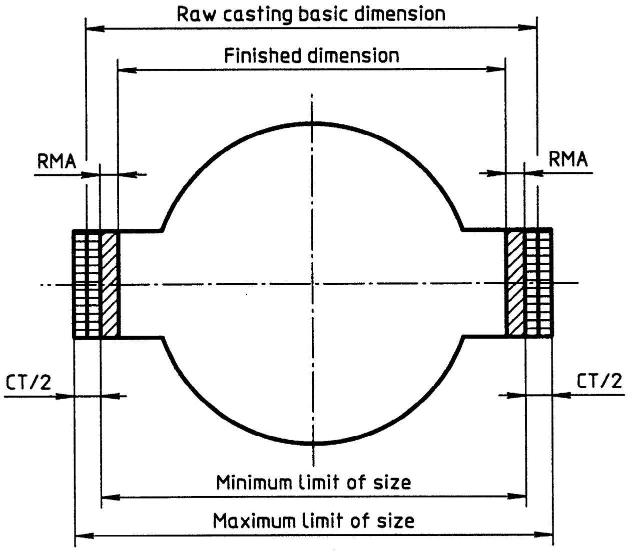

Figure 2 — Tolerance limits

3.2 dimensional tolerance: [See ISO 286-1].

3.3 required machining allowance, RMA: On raw castings, a material allowance to permit the removal of the effects of casting on the surface by subsequent machining and to allow the achievement of the desired surface texture and the necessary accuracy of dimension.

With cylindrical features or machining on both sides, the RMA is taken into account twice (see figures 5 and 6).

3.4 mismatch: Relative displacement of surfaces of a casting owing to inaccuracies in the constituent parts of multipart moulds (see figure 3).

3.5 draft angle (taper): Additional slope of shaping elements (e.g. on enveloping surfaces) necessary to facilitate the removal of a casting from a mould or die, or a pattern from a mould, or the parts of a permanent mould from each other.

4 Dimensioning

With the exception of dimensioning of wall thickness (where a chain of two dimensions may exist), chain dimensioning shall be avoided.

5 Tolerance grades

There are 16 casting tolerance grades, designated CT1 to CT16 (see table 1).

Dimensions for which general tolerances are not suitable shall be allocated individual tolerances.

While work is proceeding to obtain definite tolerance information for metallic permanent mould castings (gravity- and low-pressure), pressure die castings and investment castings, other more appropriate tolerance standards, e.g. national standards, may be employed for these particular processes.

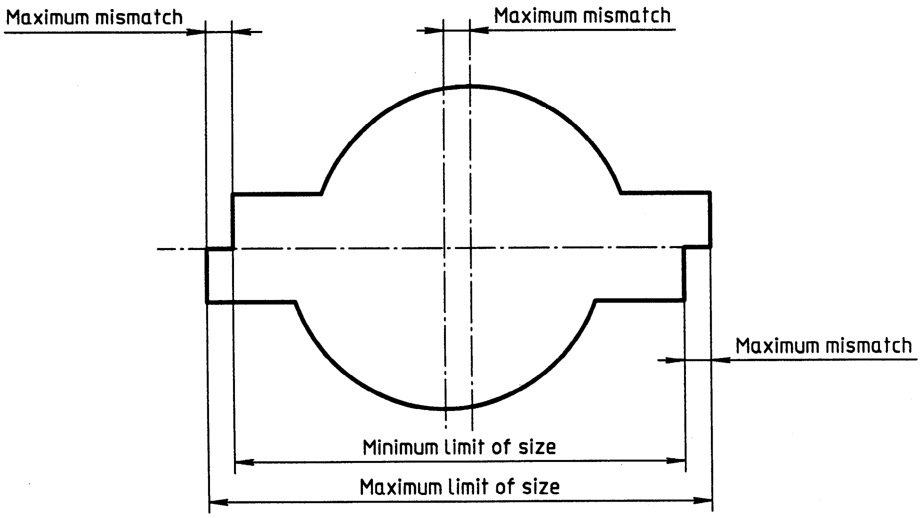

Figure 3 — Maximum mismatch

6 Mismatch

Unless otherwise specified, mismatch shall lie within the tolerance shown in table 1 (see figure 3). When it is important to restrict further the value of mismatch, the maximum value shall be stated on the drawing (see 11.1).

7 Wall thickness

Unless otherwise specified, the tolerance for wall thickness in grades CT1 to CT15 shall be one grade coarser than the general tolerance for other dimensions; for example, if there is a general tolerance on a drawing of CT10, the tolerance on wall thicknesses shall be CT11.

8 Tapered features

Where a design requires a tapered feature (e.g. feature with a draft angle), the tolerance shall be applied symmetrically along the surface (see figure 4).

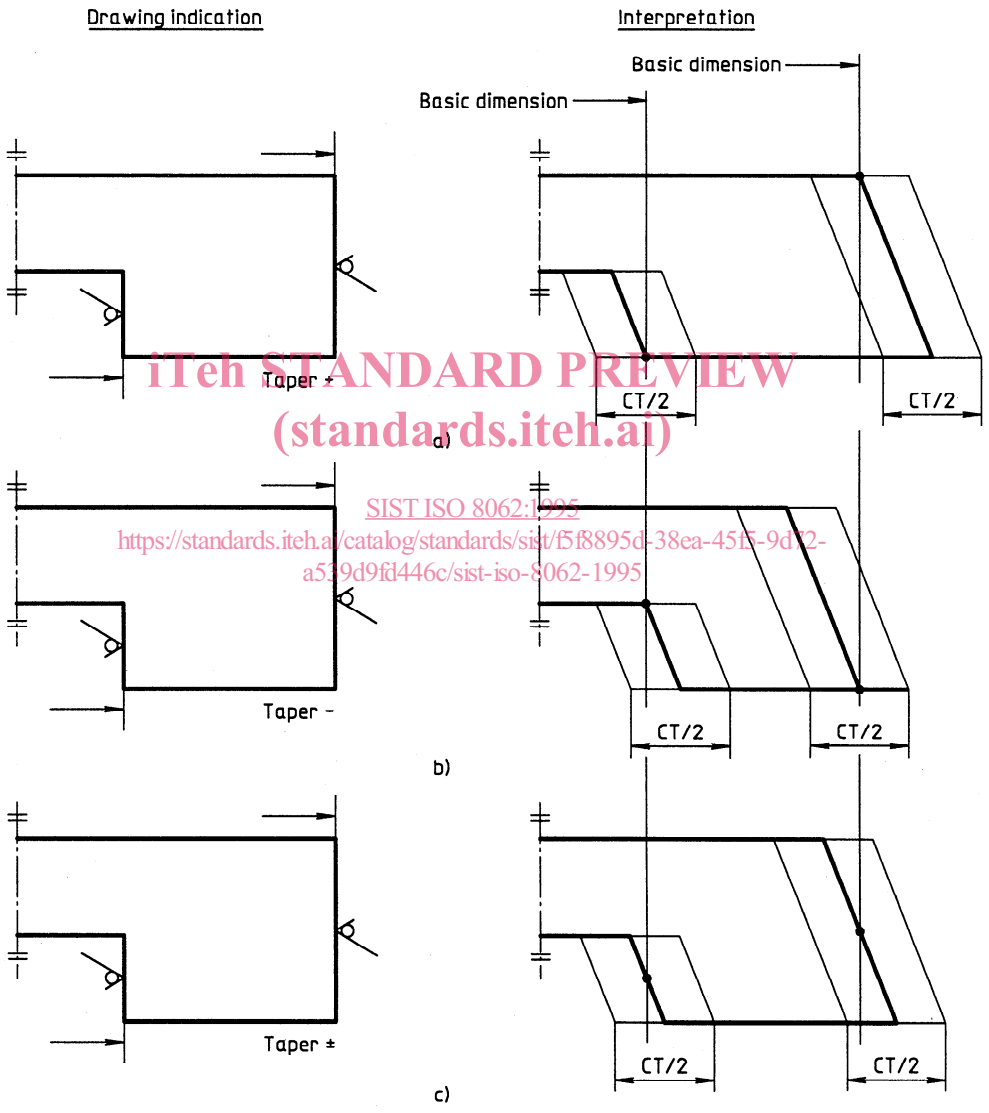

Figure 4 — Tolerance zone on tapered features