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# International Standard 7083

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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## Technical drawings — Symbols for geometrical tolerancing — Proportions and dimensions

*Dessins techniques — Symboles pour tolérancement géométrique — Proportions et dimensions*

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## Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 7083 was developed by Technical Committee ISO/TC 10, *Technical drawings*, and was circulated to the member bodies in September 1981.

It has been approved by the member bodies of the following countries :

Austria	India	Poland
Belgium	Ireland	Romania
Czechoslovakia	Italy	South Africa, Rep. of
Denmark	Japan	Spain
Finland	Korea, Dem. P. Rep. of	Sweden
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Germany, F. R.	New Zealand	USSR

The member bodies of the following countries expressed disapproval of the document on technical grounds :

Canada  
United Kingdom  
USA

# Technical drawings — Symbols for geometrical tolerancing — Proportions and dimensions

## 0 Introduction

The purpose of this International Standard is to give instructions for the correct execution of the symbols for geometrical tolerancing on technical drawings (see ISO 1101 and ISO 5459), and to harmonize the dimensioning of these symbols with the lettering used for dimensioning and other indications on the drawing.

## 1 Scope and field of application

This International Standard specifies the recommended proportions and lays down the dimensions for the symbols used to indicate geometrical tolerancing on technical drawings.

The symbols and their lettering may be hand-written (using a rule for drawing the frames) or executed by means of other appropriate methods (for example, stencils, transfers, mechanical drawing, etc.).

The dimensions of the symbols are based on the standard heights of lettering given in ISO 3098/1.

## 2 References

ISO 1101, *Technical drawings — Geometrical tolerancing — Tolerancing of form, orientation, location and runout — Generalities, definitions, symbols, indication on drawings*.<sup>1)</sup>

ISO 3098/1, *Technical drawings — Lettering — Part 1: Currently used characters*.

ISO 5459, *Technical drawings — Geometrical tolerancing — Datums and datum-systems for geometrical tolerances*.

## 3 General conditions

**3.1** The lettering used with the symbols shall be in accordance with the specifications of ISO 3098/1.

**3.2** It is recommended that on any one drawing the height, thickness of lines and type of lettering with the symbols be equal to those applied for the dimensioning and other indications on that drawing.

## 4 Proportions

Examples for the proportions of the symbols and frames for use with lettering type B, vertical or inclined, are shown in figures 1 to 21.

The configurations are depicted on a grid with a spacing equal to the thickness of line. The design of the inscribed characters is mostly not shown, but shall be the same as in ISO 3098/1 for lettering type B, vertical or inclined.

For the alternative lettering type A, vertical or inclined, appropriate grids should be used, but it is understood that

- frames are always drawn as squares or rectangles;
- symbols for tolerated characteristics and additional symbols (see ISO 1101) are always to be depicted as shown in figures 1 to 21.

1) At present at the stage of draft. (Revision of ISO/R 1101/1-1969.)

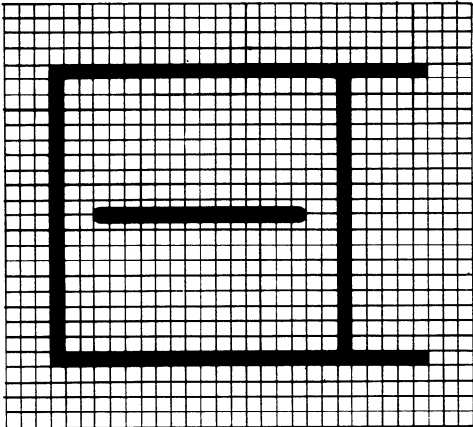


Figure 1 — Straightness

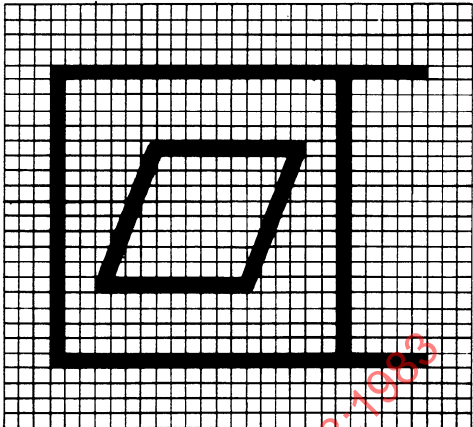


Figure 2 — Flatness

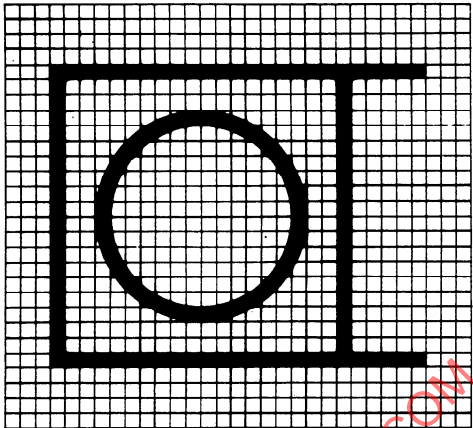


Figure 3 — Circularity (roundness)

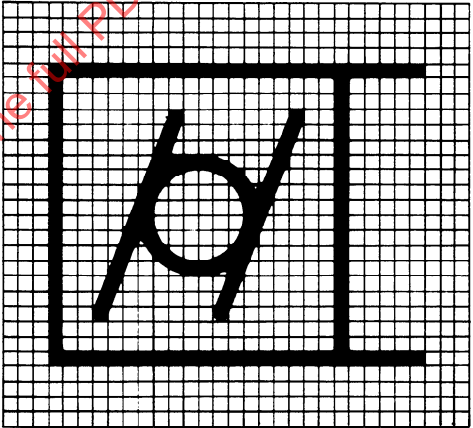


Figure 4 — Cylindricity

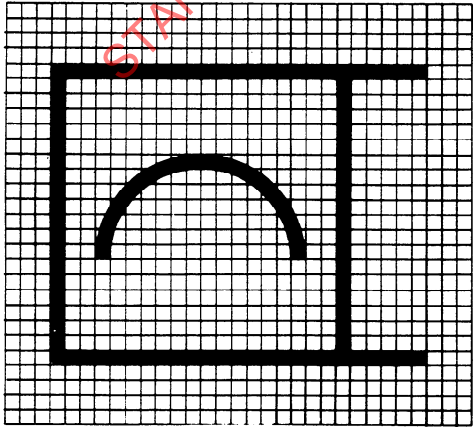


Figure 5 — Profile of any line

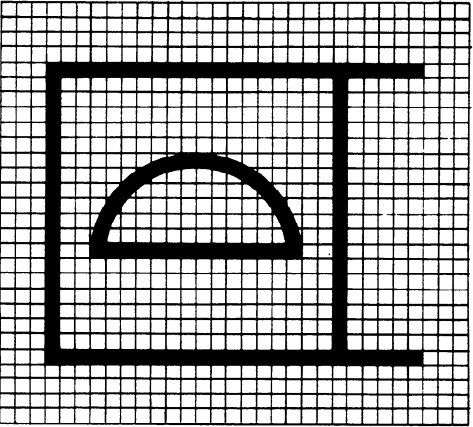


Figure 6 — Profile of any surface

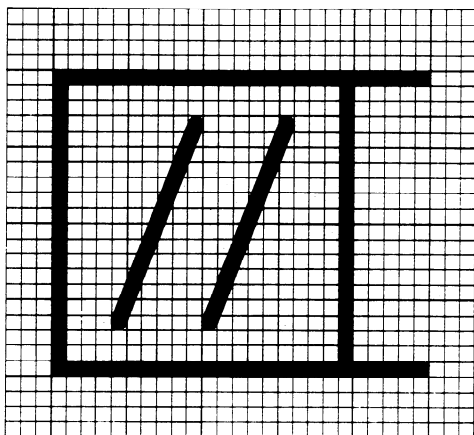


Figure 7 — Parallelism

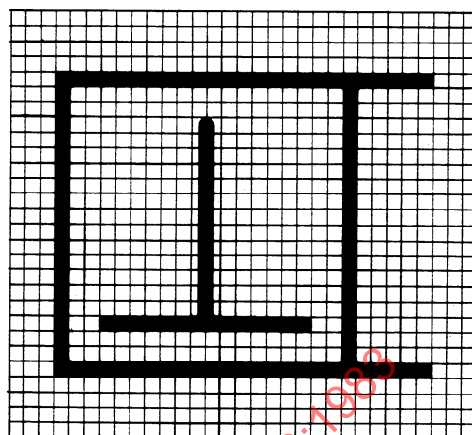


Figure 8 — Perpendicularity

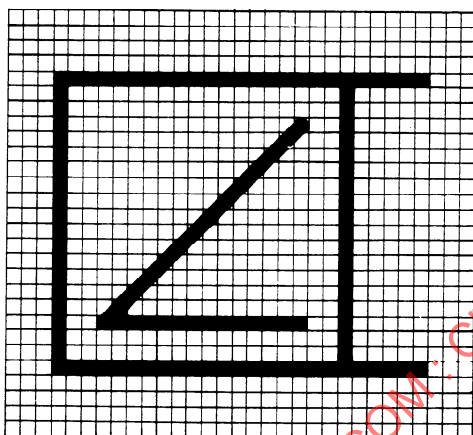


Figure 9 — Angularity

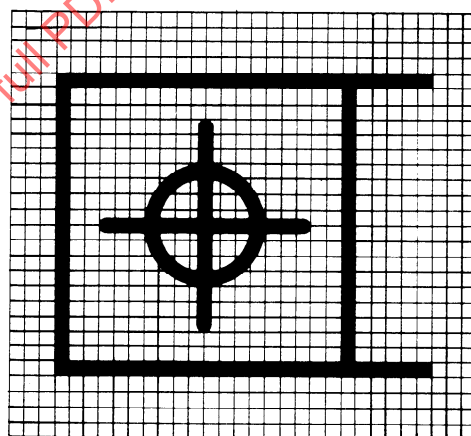


Figure 10 — Position

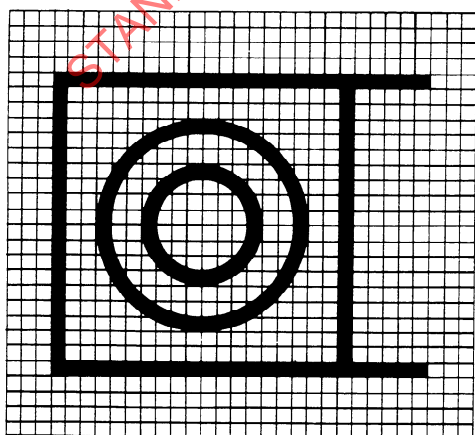


Figure 11 — Concentricity and coaxiality

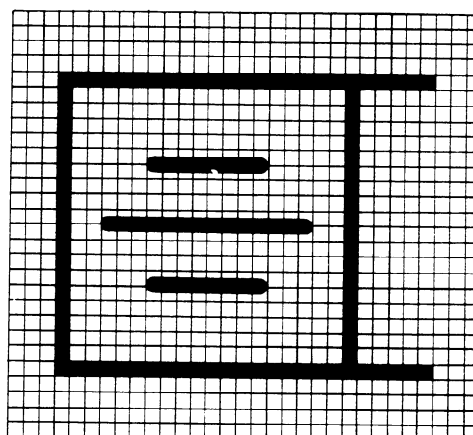


Figure 12 — Symmetry

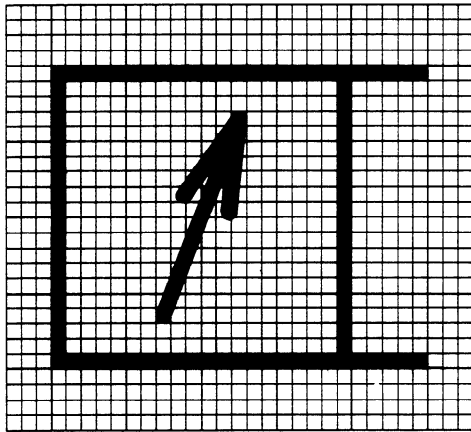


Figure 13 — Simple runout

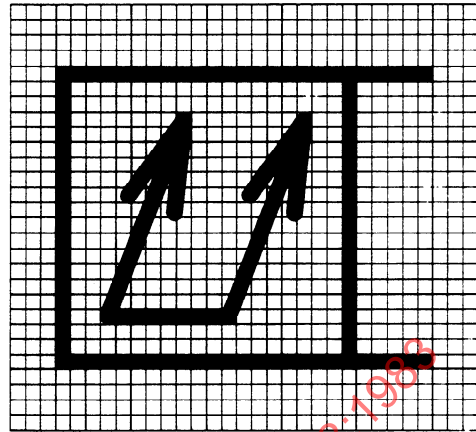


Figure 14 — Total runout

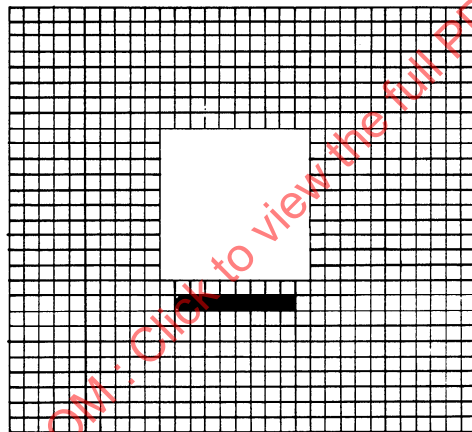


Figure 15 — Indication of tolerated feature (by reference letter)

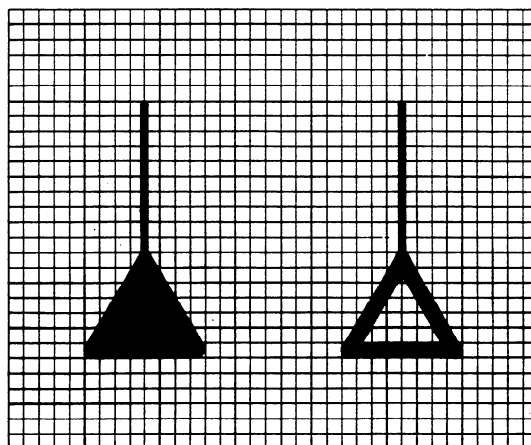


Figure 16 — Indication of datum (direct)

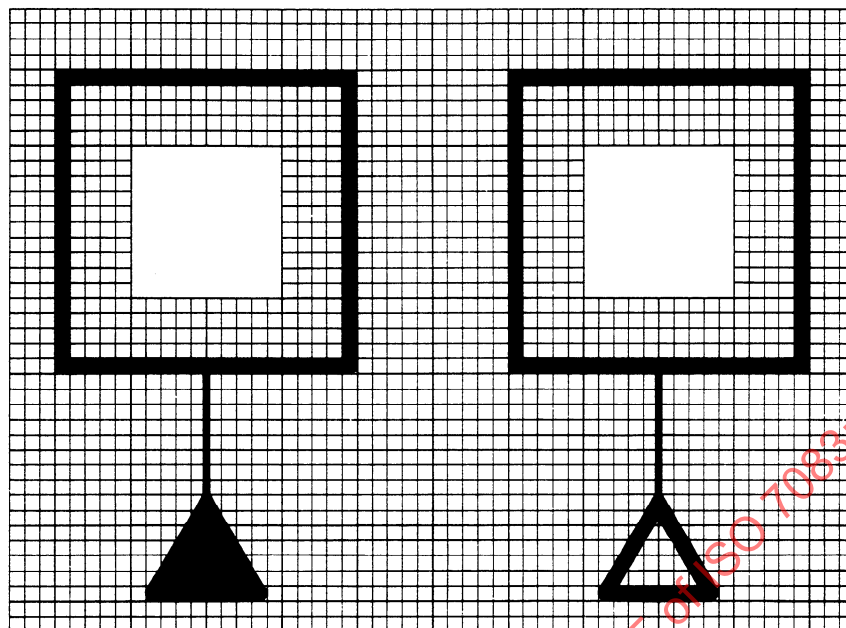


Figure 17 — Indication of datum (by reference letter)

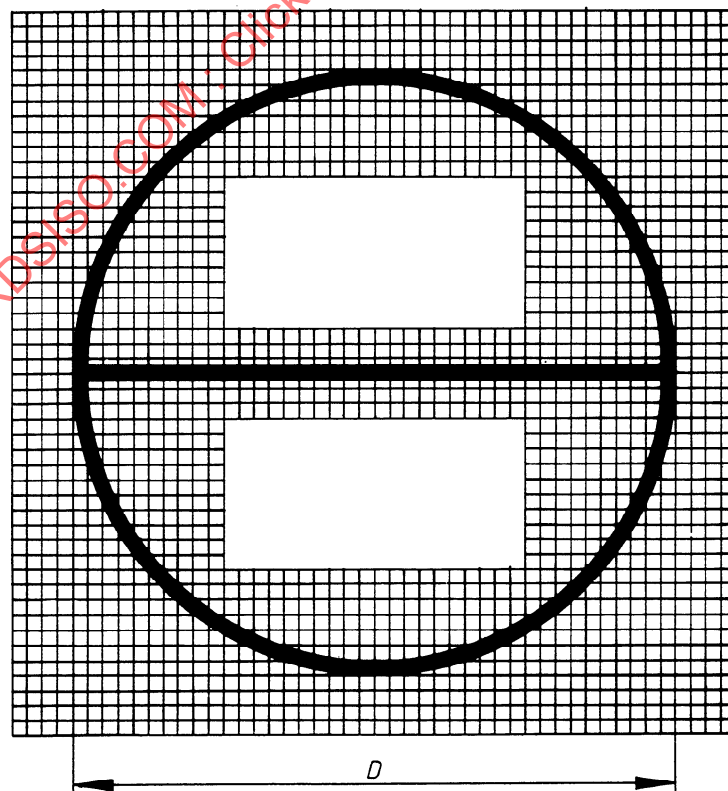
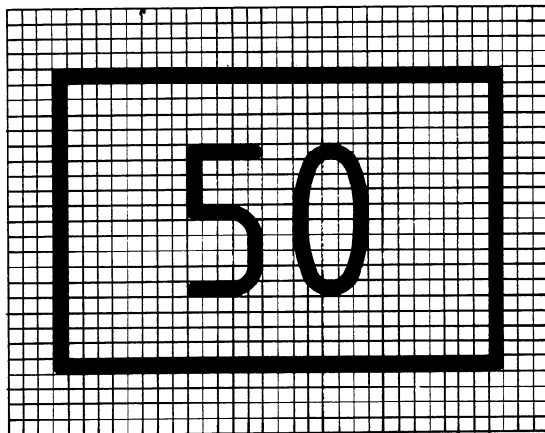
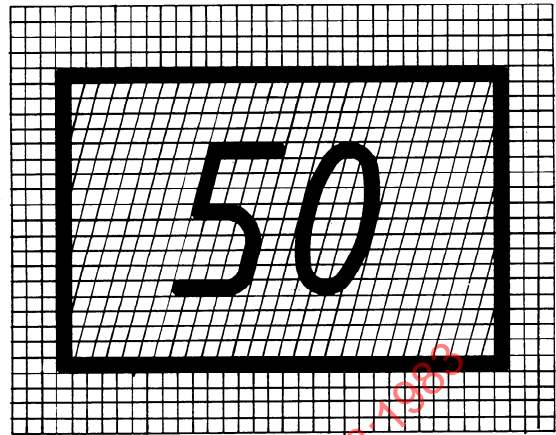


Figure 18 — Datum target (ISO 5459)

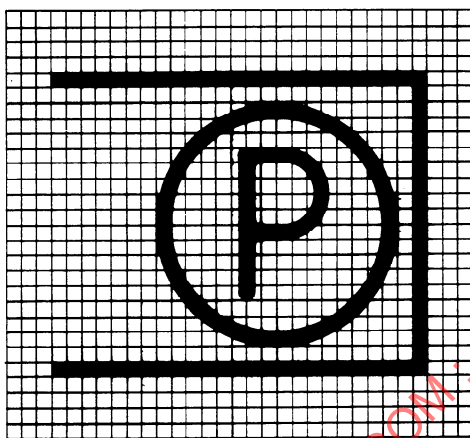


a)

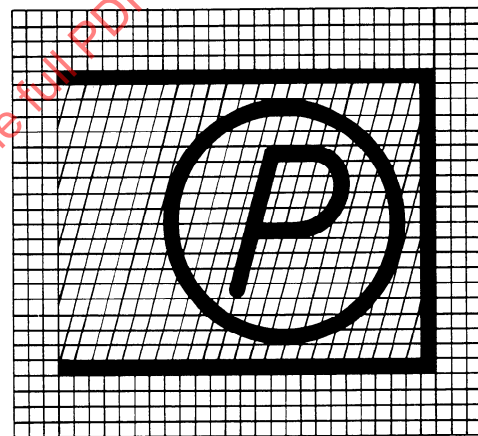


b)

Figure 19 — Theoretically exact dimension

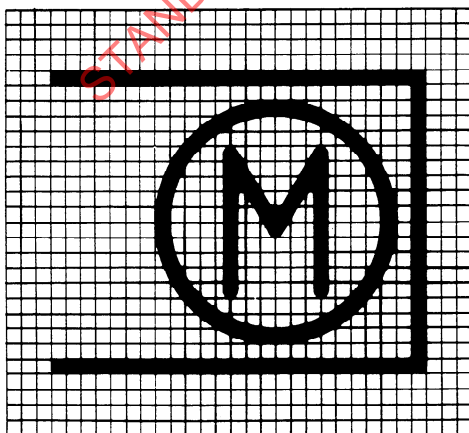


a)

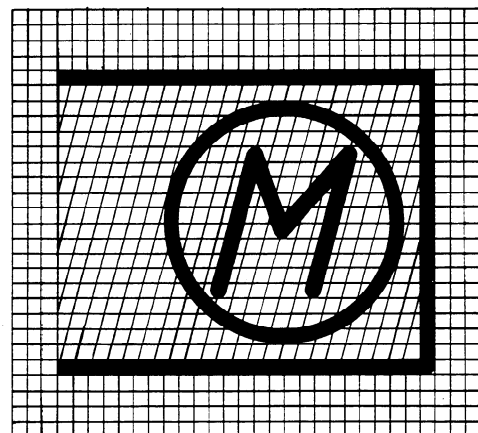


b)

Figure 20 — Projected tolerance zone



a)



b)

Figure 21 — Maximum material condition