International Standard 5457

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

Technical drawings — Sizes and layout of drawing sheets

Dessins techniques — Formats et présentation des éléments graphiques des feuilles de dessin

First edition — 1980-09-01

UDC 744.4

Ref. No. ISO 5457-1980 (E)

Descriptors : engineering drawings, papers, drawings, dimensions, designation, title blocks, position finding, graduations.

Price based on 5 pages

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 5457 was developed by Technical Committee ISO/TC 10, *Technical drawings*, and was circulated to the member bodies in the February 1978.

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

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

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Printed in Switzerland

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Technical drawings — Sizes and layout of drawing sheets

0 Introduction

The specifications of this International Standard have been drafted to meet the needs of the traditional methods of reproduction and handling technical drawings as well as the more modern methods, such as microfilming, automatic trimming, etc.

General remark

In this International Standard the figures merely illustrate the text and should not be considered design examples. For this reason the figures are simplified to show principles only. The figures are not to scale.

1 Scope and field of application

This International Standard specifies sizes of blanks and preprinted drawing sheets for use with all technical drawings in any field of engineering.

It also specifies the layout of technical drawings by fixing rules with regard to :

a) position and dimension of title block (partly)[1];

b) borders and frame;

c) centring marks;

d) orientation marks;

e) metric reference graduation;

f) grid reference system;

g) trimming marks.

In general this International Standard applies to original drawings, but rules of section one apply also to copies therefrom.

2 References

ISO 128, *Technical drawings — General principles of presentation.*[2]

ISO 216, *Writing paper and certain classes of printed matter — Trimmed sizes — A and B series.*

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

1) It should be noted that this International Standard does not specify the complete layout of the title block with the position of the different indications necessary for the comprehension of the drawing.

2) At present at the stage of draft. (Revision of ISO/R 128-1959.)

Section one : Sizes and tolerances

3 Selection and designation of sizes

The original drawing should be made on the smallest sheet permitting the necessary clarity and resolution.

The choice of sizes of the original drawing and its reproductions shall be made from the series shown in 3.1, 3.2 and 3.3 in that order.

Drawing sheets may be used with their longer sides positioned either horizontally (see figures 1 and 4) or vertically (see figures 2 and 3).

3.1 Sizes series ISO-A (first choice)

The preferred sizes of the trimmed sheets as selected from the main ISO-A series, specified in ISO 216, are given in table 1.

Table 1

Designation	Dimensions, mm
A0	841 × 1 189
A1	594 × 841
A2	420 × 594
A3	297 × 420
A4	210 × 297

3.2 Special elongated sizes (second choice)

When a sheet of greater length is needed, one of the sizes in table 2 should be used.

Table 2

Designation	Dimensions, mm
A3 × 3	420 × 891
A3 × 4	420 × 1 189
A4 × 3	297 × 630
A4 × 4	297 × 841
A4 × 5	297 × 1 051

These sizes are obtained by extending the shorter sides of a format of the ISO-A series to lengths that are multiples of the shorter side of the chosen basic format.

3.3 Exceptional elongated sizes (third choice)

When a very large or extra elongated sheet is essential, one of the sizes in table 3 should be used.

These sizes are obtained by extending the shorter sides of a format of the ISO-A series to lengths that are multiples of the shorter side of the chosen basic format.

Table 3

Designation	Dimensions, mm
A0 × 2 [1]	1 189 × 1 682
A0 × 3	1 189 × 2 523 [2]
A1 × 3	841 × 1 783
A1 × 4	841 × 2 378 [2]
A2 × 3	594 × 1 261
A2 × 4	594 × 1 682
A2 × 5	594 × 2 102
A3 × 5	420 × 1 486
A3 × 6	420 × 1 783
A3 × 7	420 × 2 080
A4 × 6	297 × 1 261
A4 × 7	297 × 1 471
A4 × 8	297 × 1 682
A4 × 9	297 × 1 892

1) This size is equal to 2A0 of the ISO-A series.

2) For practical reasons the use of these sizes is not advisable.

4 Tolerances

The dimensional tolerances for the trimmed sizes are defined in ISO 216.

Section two : Graphical features

5 Title block

5.1 Position

The position of the title block should be within the drawing space (see clause 6) such that the portion of the title block containing the identification of the drawing (registration number, title, origin, etc.) is situated in the bottom right-hand corner of the drawing space, both for sheets positioned horizontally, type X (see figure 1), or vertically, type Y (see figure 2).

The direction of viewing of the title block should correspond in general with that of the drawing.

Nevertheless, in order to economize on preprinted drawing sheets, it is permitted to use sheets type X in the vertical position (see figure 3) and sheets type Y in the horizontal position (see figure 4).

In these cases the identification portion of the title block should be in the right-hand top corner of the drawing space, and orientated such that the title block may be read when viewed from the right.

For convenience, the registration number of the drawing may be repeated elsewhere (see also clause 7).

5.2 Dimension

The identification portion of the title block shall be at the right-hand bottom corner of the title block when seen in its normal direction of viewing, and have a maximum length of 170 mm.

6 Borders and frame

6.1 Borders

Borders enclosed by the edges of the trimmed sheet and the frame limiting the drawing space shall be provided with all sizes.

It is recommended that these borders have a minimum width of 20 mm for the sizes A0 and A1, and a minimum width of 10 mm for the sizes A2, A3 and A4 (see figure 5).

In the majority of cases these values are sufficiently large to allow for gripping during printing, but with a number of reproduction machines the minimum values may be reduced to 10 mm for the sizes A0 and A1 and to 7 mm for the size A4.

6.2 Filing margin

A filing margin for taking perforations may be provided.

This margin shall have a minimum width of 20 mm (the border included therein) and shall be situated on the edge, far left of the title block.

6.3 Frame

The frame for limiting the drawing space should be executed with continuous lines of 0,5 mm minimum thickness. For other line thicknesses, see ISO 128.

7 Centring marks

Four centring marks shall be provided on all drawings to sizes designated first or second choice, in order to facilitate positioning of the drawing when reproduced or microfilmed.

These marks shall be placed at the ends of the two axes of symmetry of the trimmed sheet, and executed with strokes of 0,5 mm minimum thickness, starting from the edges of the trimmed sheet, and extending approximately 5 mm beyond the

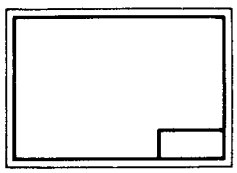


Figure 1 — Sheet type X horizontal

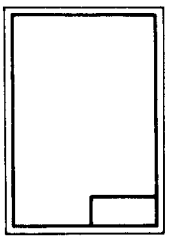


Figure 2 — Sheet type Y vertical

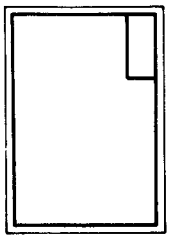


Figure 3 — Sheet type X vertical

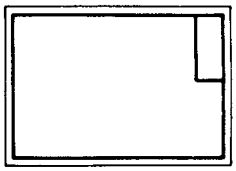


Figure 4 — Sheet type Y horizontal

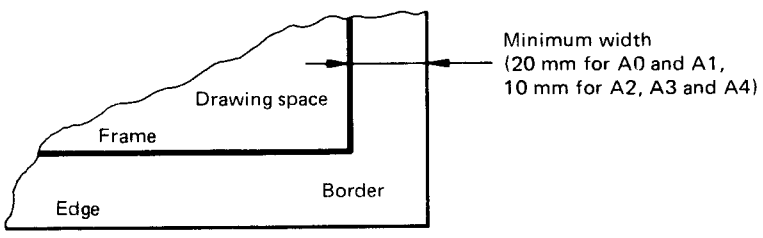


Figure 5 — Borders

drawing frame. A positional tolerance of ± 0,5 mm should be observed for the marks (see figure 6).

Sizes designated third choice, being too large to be microfilmed on one frame, require additional centring marks on their long sides, at the mid-point of each section to be filmed. To facilitate the possible reassembly of the sections, the number of sections should be chosen such that sufficient overlap occurs. The registration number of the drawing shall appear on each section, followed by the number of the section, if necessary.

8 Orientation marks

Two orientation marks may be provided to indicate the orientation of the drawing sheet on the drawing board.

These marks consist of arrows (see figure 7) and should be placed across the frame, one at a shorter side and one at a longer side, coinciding with the centring marks on those sides, so that one of the orientation marks always points to the draughtsman (see figures 8, 9, 10 and 11).

9 Metric reference graduation

It is recommended to provide on all drawings a figureless metric reference graduation with a minimum length of 100 mm and divided into 10 mm intervals (see figure 12).

The metric reference graduation shall preferably be disposed symmetrically about a centring mark, near the frame in the border, with a maximum width of 5 mm, and be executed with continuous strokes of 0,5 mm minimum thickness.

The metric reference graduation is to be repeated on each section of a drawing which is intended to be microfilmed in more than one section (see clause 7).

10 Grid reference system

The provision of a grid reference system is recommended for all sizes, in order to permit easy location on the drawing of details, additions, modifications, etc.

The number of divisions should be divisible by two and be chosen in relation to the complexity of the drawing. It is recom-

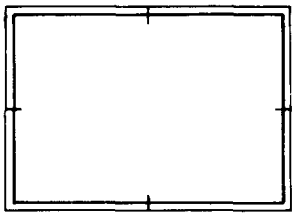


Figure 6 — Centring marks

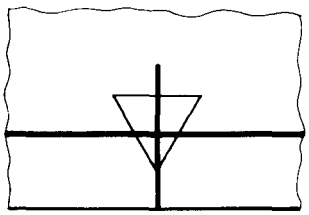


Figure 7 — Orientation marks

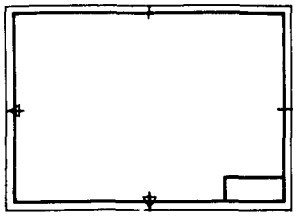


Figure 8 — Sheet type X

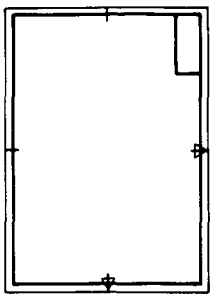


Figure 9 — Sheet type X

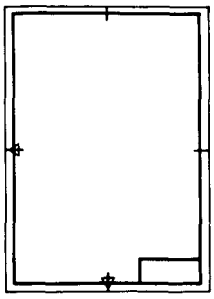


Figure 10 — Sheet type Y

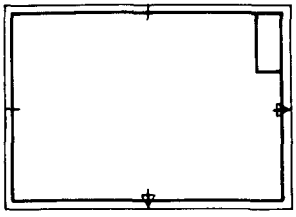


Figure 11 — Sheet type Y

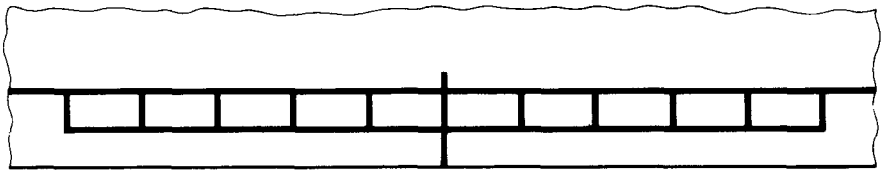


Figure 12 — Metric reference graduation

mended that the length of any side of the rectangles comprising the grid shall not be less than 25 mm and not more than 75 mm.

The grid reference system lines shall be drawn with continuous strokes of 0,5 mm minimum thickness.

The rectangles of the grid should be referenced by means of capital letters along one edge and numerals along the other edge. The numbering direction may start at the sheet corner opposite to the title block and be repeated on the opposite sides.

The letters and numerals shall be placed in the borders, close to the frame at a minimum distance of 5 mm from the edges of the trimmed sheet, and are to be written in upright characters according to ISO 3098/1 (see figure 13).

If the number of the lettered divisions exceeds that of the alphabet, the reference letters with the extra divisions should be doubled (AA, BB, CC, etc.).

11 Trimming marks

Trimming marks may be provided in the borders at the four corners of the trimmed sheet in order to facilitate trimming.

These marks may be in the form of right-angled isosceles triangles with two sides of approximately 10 mm (see figure 14).

However, with a number of automatic trimming machines, the triangles may provide difficulties, in which case the marks should be reduced to two short strokes at each corner with a width of 2 mm (see figure 15).

12 Preprinted drawing sheets

On preprinted drawing sheets the following features should be shown in all cases :

- title block;
- frame for limiting the drawing space;
- centring marks.

The following features are optional only :

- orientation marks;
- metric reference graduation;
- grid reference system;
- trimming marks.

The sheet may be transparent, translucent or opaque, but should preferably be matt on the face.

The printing may be either on the face or (with transparent or translucent sheets) on the reverse side.

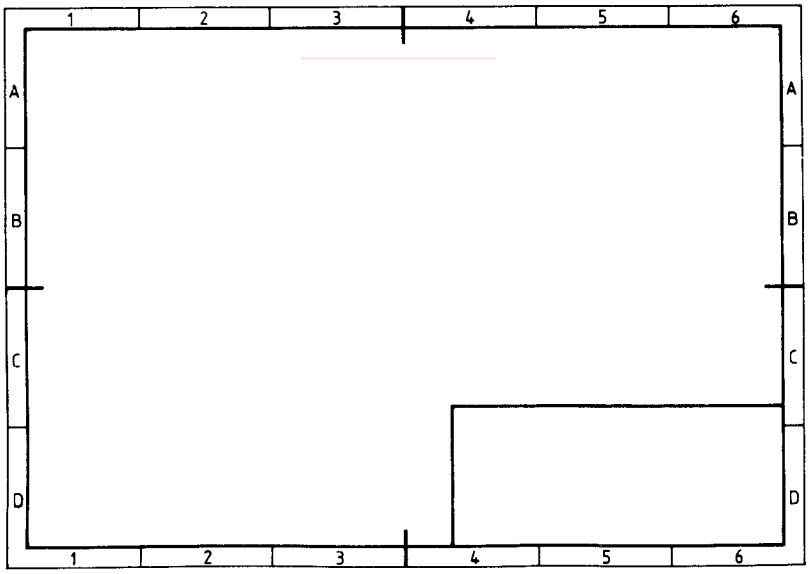


Figure 13 — Grid reference system

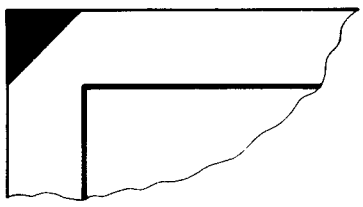


Figure 14 — Trimming marks

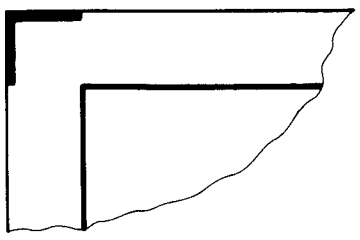


Figure 15 — Trimming marks (alternative execution)