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JIS

JAPANESE INDUSTRIAL STANDARD

Technical Drawing for Mechanical Engineering

JIS B 0001 —1985

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JAPANESE INDUSTRIAL STANDARD J I S

Technical Drawing for Mechanical Engineering B 0001-1985

1. Scope

This Japanese Industrial Standard specifies the drawing mainly of part drawing and assembly drawing which is used in the field of mechanical engineering based on JIS Z 8310.

Further, the items not specified in this standard shall be in accordance with JIS Z 8310 and other Japanese Industrial Standards separately specified on drawings respectively.

2. Definitions

For the purpose of this standard the main definitions shall be in accordance with JIS Z 8114.

3. General Items

General items concerning technical drawing for mechanical engineering shall be as follows:

(1) The technical drawing shall be so drawn that the correct proportional relation between the size of view and the size of object is maintained. However, for the drawing considered to have no fear of misreading, this proportional relation may be not maintained on a part or all parts of view.

(2) The centre of line in thickness direction shall be on the position of line theoretically to be drawn.

(3) The line internal (centre distance) of lines to be drawn adjacent to each other is to be three times the thickness of line in the case of parallel lines and the clearance between the lines is desirable not less than 0.7 mm, as a rule.

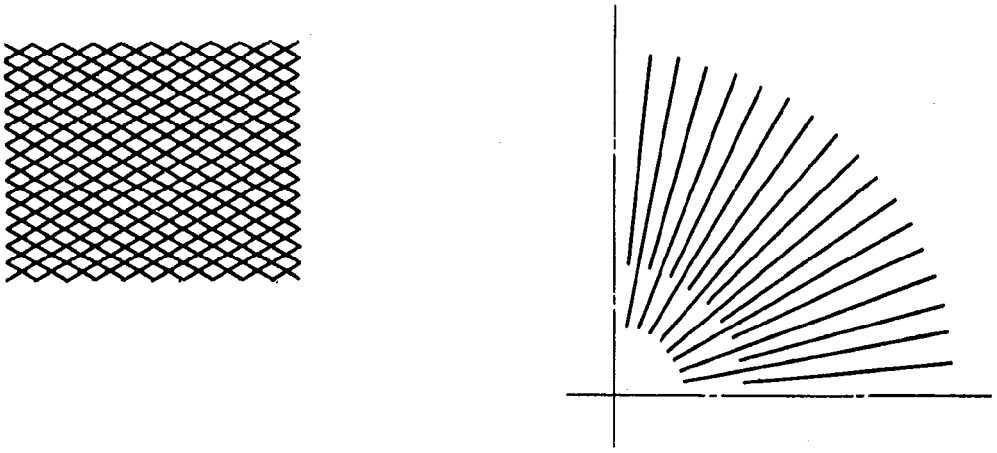
Further, in the case of intersecting lines aggregated densely, the line interval shall be not less than 4 times the thickness of the line [Fig. 1 (a)].

(4) In the case where many lines concentrate to a point unless it is not confused, the lines shall be stopped at a position where the line interval becomes about three times the thickness of line and the periphery of the point is desirable to be clear [Fig. 1 (b)].

Applicable Standards and Corresponding International Standards and Reference Standards: See pages 74 and 75.

Fig. 1

(a) (b)



(5) The objects or parts made of transparent material shall be drawn as all of them are opaque in projected view.

(6) The dimension in length, unless otherwise designated ([1]), shall be so designated that the measurement of the object is carried out by two point-measurement.

Note ([1]) In the case where the application of envelope requirement [see JIS Z 8318] is designated, and others.

(7) For the dimension, excepting special one (reference dimension, theoretically exact dimensions, etc.), the permissible limits of dimension shall be designated directly or collectively.

(8) Only where it is enevitable depending on the functional requirement, interchangeability and, manufacturing technical level, the geometrical tolerances shall be designated in accordance with JIS B 0021.

Further, the geometrical tolerances, unless specially designated, does not restrict the shape.

(9) In the case where the designation concerning the surface texture is required, it shall be designated in accordance with JIS B 0031.

(10) The indication of special parts such as screws, centre holes, etc. shall be in accordance with separately specified JIS.

(11) In the case where the symbol specified in JIS to be used in drawing is used in strict accordance with the specifications, in general, it is not required to note specially.

In the case where the symbol specified without designation to use for drawing specially or the symbol specified in publicly known standard other than JIS is used, the number of the standard shall, as a rule, be noted on a proper portion of the drawing.

Further, in the case where the symbol not based on them is used, the meaning of the symbol shall be noted on a proper portion of the drawing.

4. Size and Format of Drawings

The size and format of drawings shall be as follows:

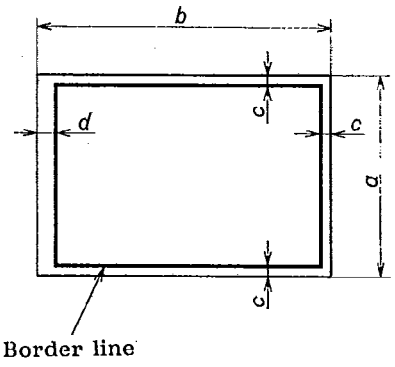
(1) For the size of drawing, Row A size in accordance with Table 1 shall be used. However, where it is extended, the extended size shall be used.

Table 1. Classification of Sizes of Drawings and Dimensions of Border

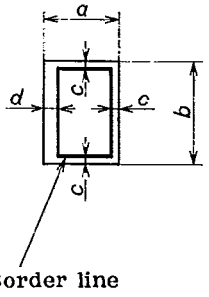
Unit: mm

Row A size					Extended size				
Desig-nation	Dimension $a \times b$	c (min.)	d (min.)		Desig-nation	Dimension $a \times b$	c (min.)	d (min.)	
			Not bound	Bound				Not bound	Bound
—	—	—	—	—	A 0×2	1 189×1 682	20	20	25
A 0	841×1 189	20	20	25	A 1×3	841×1 783			
A 1	594× 841				A 2×3 A 2×4	594×1 261 594×1 682			
A 2	420× 594	10	10		A 3×3 A 3×4	420× 891 420×1 189	10	10	
A 3	297× 420				A 4×3 A 4×4 A 4×5	297× 630 297× 841 297×1 051			
A 4	210× 297				—	—	—	—	—

In the Case of A0 to A4



In the Case of A4



Remark: The part of d shall be set so that it becomes left side of title block when folded to file the drawing.

(2) The drawing shall be used with its long side placed in left-right direction. However, A4 may be used with its short side placed in left-right direction.

(3) On drawing, the border line of not less than 0.5 mm in thickness shall be drawn in conformity to the sizes specified in Table 1.

(4) On drawing, the title block shall be set in its right-down corner, and, as a rule, drawing number, name of drawing, name of enterprise (organization), sign of person in charge (private seal), date of preparation of drawing, scale, and projection method shall be inscribed.

(5) On drawing, the centre mark shall be set in accordance with JIS Z 8311.

(6) In the case of folding-up the duplicated drawing, its size shall, as a rule, be 210 mm x 297 mm (size of A4).

Remark: The full scale is not folded-up ordinarily. In the case where the full scale is preserved by winding, the inside diameter should preferably be not less than 40 mm.

5. Scale

The scale to be used for drawing shall be as given in the following:

(1) The scale shall be expressed by $A : B$:

where A: the corresponding length in the drawn view

B: actual length of object

Further in the case of full scale, both A and B shall be indicated by 1, in the case of reduction scale, A, by 1, and in the case of enlargement scale, B, by 1.

Example 1: In the case of reduction scale 1:2 $1:2\sqrt{2}$ 1:10

Example 2: In the case of full scale 1:1

Example 3: In the case of enlargement scale 5:1

(2) Values of scales shall be as given in Table 2.

Table 2. Values of Reduction Scales, Full Scales, and Enlargement Scales

Kind of scale	Column	Value
Reduction scale	1	1 : 2 1 : 5 1 : 10 1 : 20 1 : 50 1 : 100 1 : 200
	2	$1 : \sqrt{2}$ 1 : 2.5 $1 : 2\sqrt{2}$ 1 : 3 1 : 4 $1 : 5\sqrt{2}$ 1 : 25 1 : 250
Full scale	—	1 : 1
Enlargement scale	1	2 : 1 5 : 1 10 : 1 20 : 1 50 : 1
	2	$\sqrt{2} : 1$ $2.5\sqrt{2} : 1$ 100 : 1

Remark: The scale of column 1 should preferably be used.

(3) The scale shall be inscribed in title block of drawing. In the case where different scale is used on the same drawing, it shall also be inscribed near the view, as required.

In the case where the view is not proportional to the dimension, the circumstances shall be described clearly in a proper portion.

Further, the indications of these scales, in the case where there is no fear of misreading, may be not described.

6. Lines

The lines to be used on drawing shall be as given in the following:

(1) The reference of thickness of lines shall be 0.18 mm, 0.25 mm, 0.35 mm, 0.5 mm, 0.7 mm and 1 mm.

(2) Lines shall be used as shown in Table 3 depending on uses.

Further, in the case where the line independent of this table has been used, the use of the line shall be noted in the drawing.

(3) In the case where lines of two kinds or more are overlapped on the same portion of drawing, the line of preferable kind shall be drawn in the order shown as follows (Fig. 2).

(a) Visible outline

(b) Hidden line

(c) Line of cutting plane

(d) Centre line

(e) Centroidal line

(f) Projection lines

Fig. 2