ICE-1108 Engineering Drawing

Lecture 4

Distinct Lines and Dimension

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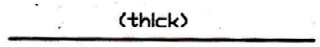
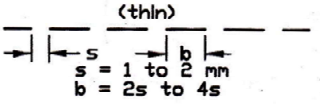
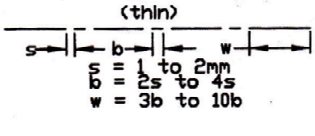
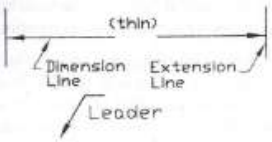
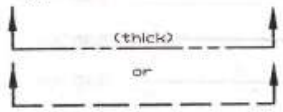
Types of drawing

Table 1.2: Types of Lines with Their Usage (contd.)

Sl No.	Types of Line	Usage
1	Visible line / object line 	to indicate all visible outlines of an object. It shows the shape of an object.
2	Hidden line / dashed line 	to represent the hidden edge of an object. It must begin and end with a dash touching the visible lines. Dashes that show hidden lines usually touch each other at intersection.
3	Center line 	to show the center line of holes, pitch line.

Types of drawing

Table 1.2: Types of Lines with Their Usage (contd.)

Sl No.	Types of Line	Usage
	Extension line, dimension line and Leaders 	to show dimension of an object extension line, dimension line and leaders are used.
5	Section line 	to indicate the cut portion of an object.
6	Cutting plane line 	to show the imaginary cutting of an object

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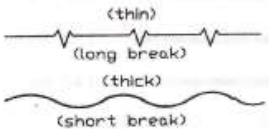
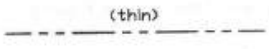
7	ISO Cutting Plane Line 	
8	Break line 	to show a break on the object. It shortens the view of a long part.
9	Phantom line/repeat line 	to show the alternate position of an object or the position of an adjacent part.

Dimensioning

Dimension plays a significant role.

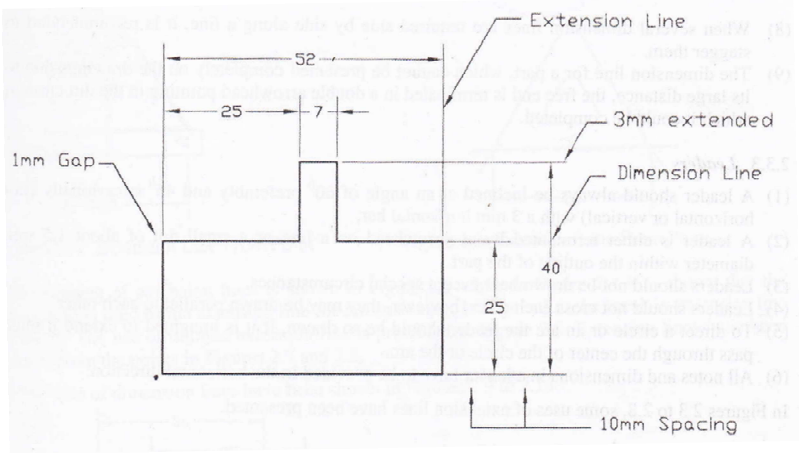
Engineering drawing without dimensioning is meaningless.

Dimensions are indicated on the drawing by arrowheads, extension lines, dimension lines, leaders, figures, notes, symbols etc. in order to define the geometric characteristics such as lengths, diameters, angles, locations etc.

The lines used in dimensions are thin compared to visible lines.

The dimension must be clear concise and always allow the single interpretation.

Types of drawing



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The following rules are to be remembered while inserting dimensions on a part.

2.3.1 ***Extension Line***

(1) A gap of 1 mm has to be kept in between the extension line and the visible line.
(2) An extension line should extend about 3 mm from the outermost dimension line.
(3) Extension lines may cross each other without a break. They may also cross the visible lines without a break. If the extension lines cross arrowheads or dimension lines close to arrowheads, a break may be permissible.
(4) Centerlines may be used as extension lines. However, it should not be broken while passing the circle.
(5) Extension lines are usually drawn perpendicular to dimension lines, where there is overcrowding extension lines may be drawn at an oblique angle.

2.3.2 ***Dimension Line***

(1) Dimension line should be approximately 10 mm away from the visible line. The spacing between the consecutive parallel dimension lines may also be considered as 10 mm.
(2) Dimension lines are broken near the middle to allow space for dimension.

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(3) Dimension lines should usually be placed outside the view unless it becomes necessary.
(4) When the space in between the extension lines is too small to insert dimension line completed with arrowhead, it may be provided outside the extension line.
(5) Dimension lines should not cross each other. To accomplish it the shortest dimension line should be placed nearest to the outline of the part.
(6) Centerlines should never be used as dimension lines.
(7) In order to avoid long extension line or crowding of dimensions, dimension lines inside the view may be permissible.

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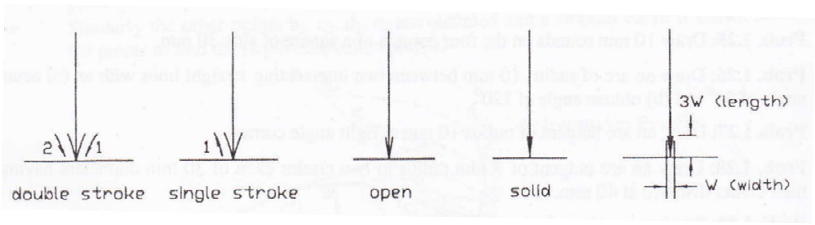

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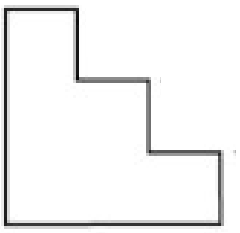
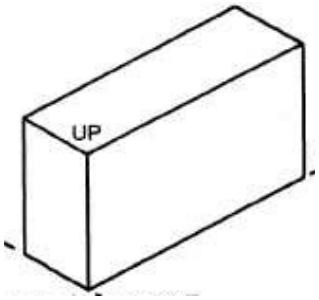
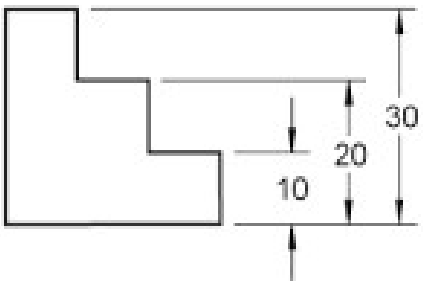


Types of drawing



Types of drawing



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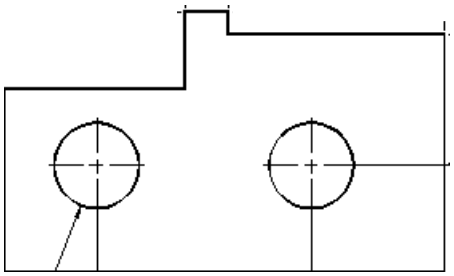
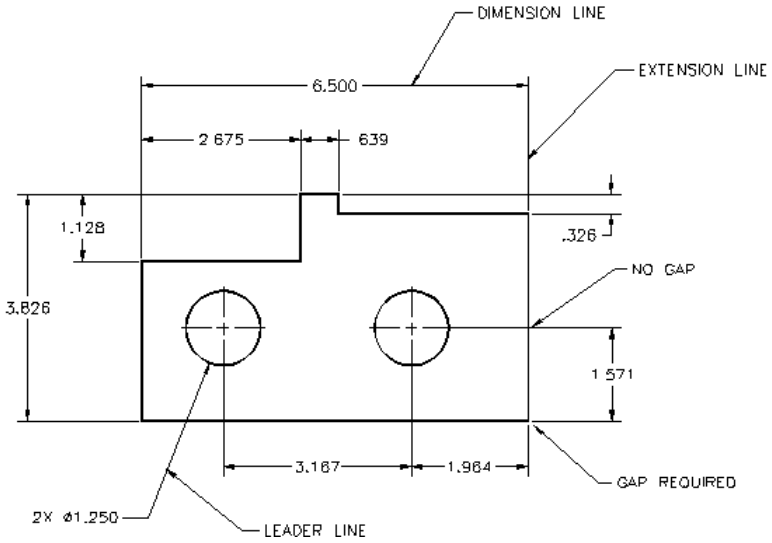
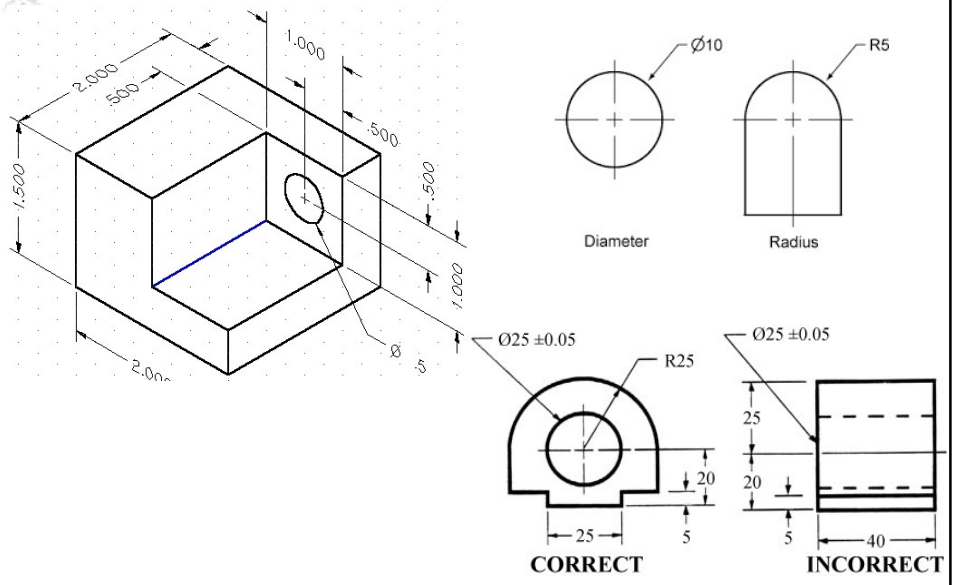


Types of drawing



Types of drawing



Types of drawing