

Argunmat: Oluwadami Lola Alexander
18/ENG05/011 Mechanical Engineering

① Section lines or cross-hatch lines are added to a section view to indicate the surfaces that have been cut by the imaginary cutting plane. They represent a sectioned surface on a drawing. Different sectioning lines are used for different materials.

② Principles of Dimensioning

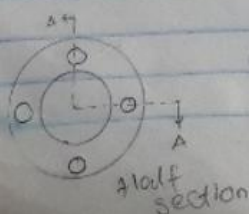
- Avoid dimensioning through or over the object
- All dimension, extension and leader lines should be thin, sharp, dark lines
- Dimensions should be placed outside the outlines of the views if possible
- Holes are located by their centre lines which may be extended and used as an extension line
- A dimension line should never coincide with an object line or a centre line nor should it be an extension of these lines
- Wherever possible, avoid dimensioning to hidden lines
- Leader lines should never cross one another

(a) Half section

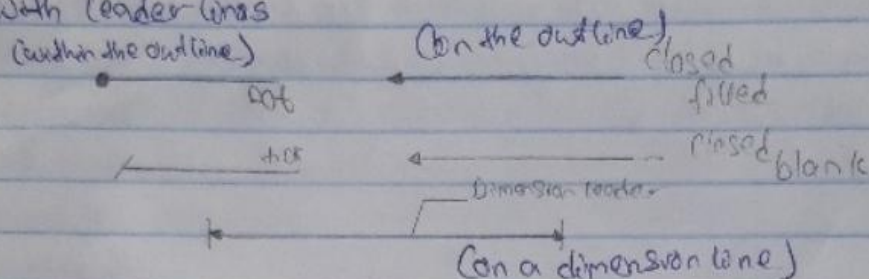
When the cutting plane is assumed to bend at a right angle and cuts through only half of the represented object for the full length, it is called a half section.

(b) Full section

The imaginary cutting plane passes through the entire object, splitting the object drawn into two with the interior of the object revealed.



4) A leader line is a continuous thin line which can be terminated by different terminators. The British technical drawing standards relates to four different terminators used with leader lines



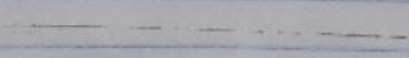
5) a) scale = 5:1

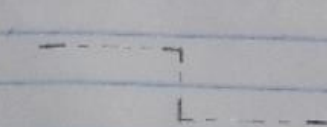
A scale ratio is the ~~size~~ ratio of the size of drawing to the size of object. It means that the above scale ratio describes a drawing that is 5 times the size of the original object. This will enlarge the drawing size so that all details are clearly visible.

b) scale = 1:10


The scale ratio above describes a drawing that is 10 times less than the original object. It means that the object drawing is reduced so that the object fits into the page.

6) (a) diameter $\Rightarrow \phi$ (b) Radius $\Rightarrow R$, (c) square $\Rightarrow \square$
 (d) spherical radius $\Rightarrow SR$

(a) Centre line \Rightarrow  thin chain

(b) Cutting plane line \Rightarrow  thin chain, thickest edges and changes of direction

(c) long break

 ruled lines with free hand zigzags

7) elements to consider while obtaining projections

(i) The object

(ii) The plane of projection

(iii) The point in space or point of sight

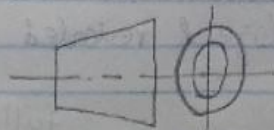
(iv) The projector or rays of sight

An Orthographic projection is one in which the projectors are parallel to each other and intersect the plane of projection at right angles to it. All the projection lines are orthogonal to the projection plane.

8) Orthographic projection has planes that intersect to form quadrants. When an object to be drawn is imagined to be placed in one of these the quadrants and orthographic views of it are projected on the planes, it may be called an orthographic projection.

9) First angle projection

In first angle projection the ~~image~~ object is imagined to be positioned in the first quadrant. The view from the ~~front~~ front of the object is obtained by looking at the object from the right side of the quadrant and tracing in correct sequence, the point of intersection between the projection plane and the rays of sight extended. The object is ~~to be~~ imagined to be transparent and the projection lines are extended from various points of the object to intersect the projection plane.



symbol for first angle projection

Third Angle Projection

The object is imagined to be positioned in the third quadrant. The plan comes between the observer and the object. Since the plans are between the observer and the object they are imagined to be transparent and the object is viewed from them. An elevation and plan is projected onto the vertical and horizontal planes respectively, using parallel projectors normal to the planes^{as} in the first angle projection.



Symbol for third angle projection

MCQ

- ① ~~Refer~~ A
- ② B
- ③ C
- ④ B
- ⑤ A
- ⑥ None
- ⑦ C
- ⑧ B
- ⑨ A
- ⑩ A
- ⑪ C

- ⑫ A
- ⑬ B
- ⑭ C
- ⑮ D