

**TYPES OF LINES IN  
TECHNICAL DRAWING  
AND THEIR USES**

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**EDITED**

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# **Motivation & Environment**

**Presents:**

## **Types of Lines in Technical Drawing and Their Uses**

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# **Types of Lines in Technical Drawing and Their Uses**

Lines are perhaps the most important characteristic of technical drawings because they illustrate how shapes and sizes of objects appear and would appear after they are constructed or produced.

The different types of lines technical drawing lines help to convey important messages that abide by technical drawing standards. Therefore, it is important to be acquainted with the different types of technical drawing lines to read and create drawings and that other people can easily understand.

Twenty types of technical drawing lines and their respective uses are as follows:

## **1. Break line**

Break line is a type of technical drawing line that is used to create breakouts on sections to shorten distances between parts of a drawing and give more clarity. Usually, three types of lines that have different line weights are used as break lines: long break line, short break line, and cylindrical break line.



**Figure 1: Break line**

## **2. Center line (or, long/short-dashed thin line)**

Center line is a type of technical drawing line that is used to represent or locate the centers of circles, cylindrical surfaces, symmetrical areas/objects, tools, etc. Center lines are drawn as thin broken lines that have long and short dashes. In many instances, the long and short dashes may vary in length, but this depends on the scale or size of the drawing. Center lines could be extended and used as extension lines during dimensioning of objects or shapes.



**Figure 2: Center line**

## **3. Chain line**

Chain line is a thin or thick broken or spaced parallel line used to indicate pitch lines (lines that show the pitch of gear teeth or sprocket teeth), developed views, the features in front of a cutting

plane, or center lines. Usually, chain lines are applied at the beginning and end of long dashes, at center points as center lines, in dimensioning, or for other purposes.



**Figure 3: Chain line**

#### **4. Construction Line**

Construction line (which is a light thin line) is used to develop shapes and locations of features in technical drawings. After using construction lines to develop thick visible outlines of objects, they can left on the sketches of many drawings or cleaned off with an eraser.



**Figure 4: Construction line**

#### **5. Continuous thick line**

Continuous thick line is the type of technical drawing line that is used to represent visible edges and outlines of objects, shapes,

and structures. They are usually dark and heavy solid lines which are very prominent in many drawings.



**Figure 5: Continuous thick line**

## **6. Continuous thin line**

Continuous thin line is used to represent leader lines, extension lines, dimension lines, projection lines, hatching lines for cross sections, reference lines, imaginary lines of intersections, and short center lines.

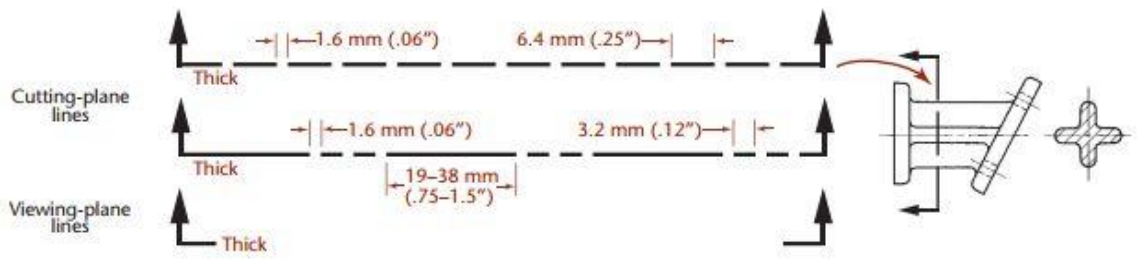


**Figure 6: Continuous thin line**

## **7. Cutting plane line (viewing plane or section line)**

Cutting plane line is the type of technical drawing line that is used to designate the positions of cutting planes in sections, or during sectioning. Two types of cutting plane lines can be used: the first type is a dark line that consists of one long dash and two short dashes spaced alternately. Long dashes are usually drawn

at any length between 20 and 40mm, or a little bit more, depending on the scale and size of the drawing. The short dashes are usually drawn approximately 3mm long, and spaced at 1.5mm (between dashes). The second type of cutting plane line consists of short dashes of equal lengths, approximately 6mm long, with a space (of length) of 1.5mm between each short dash.



**Figure 7: Cutting plane line**

## 8. Dimension line

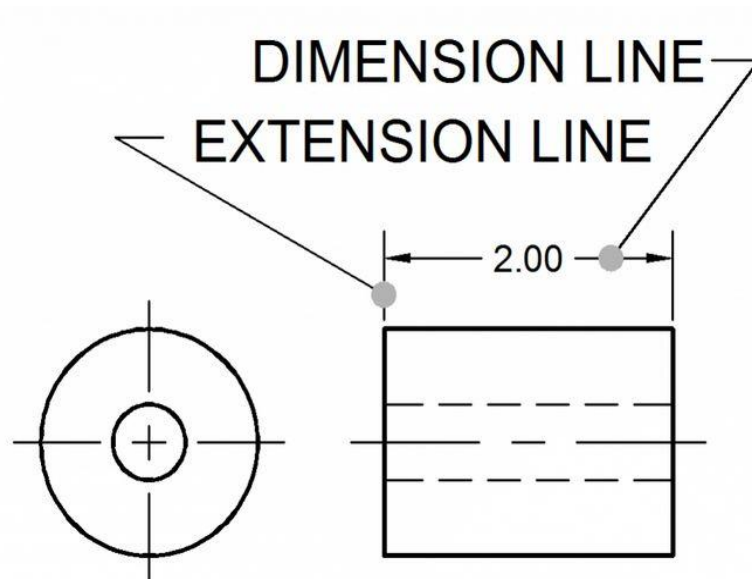
Dimension line is a thin line that has arrowheads at its opposite ends and is used to represent the precise length, breadth, width, and height of objects.



**Figure 8: Dimension line**

## 9. Extension line

Extension line is a thin solid line that represents the extent (beginning and end) of a dimension in a drawing. Extension lines are usually drawn at approximately 1.5mm away from the outlines of objects and extended 3mm longer than the outermost arrowheads located at the ends of dimension lines.



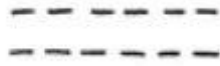
**Figure 9: Extension line side by side with dimension line**

## 10. Freehand break line (or continuous narrow irregular line)

Freehand break line is the type of technical drawing line that is drawn with freehand (i.e., by hand or without mechanical aids or devices) and used to indicate short breaks or irregular



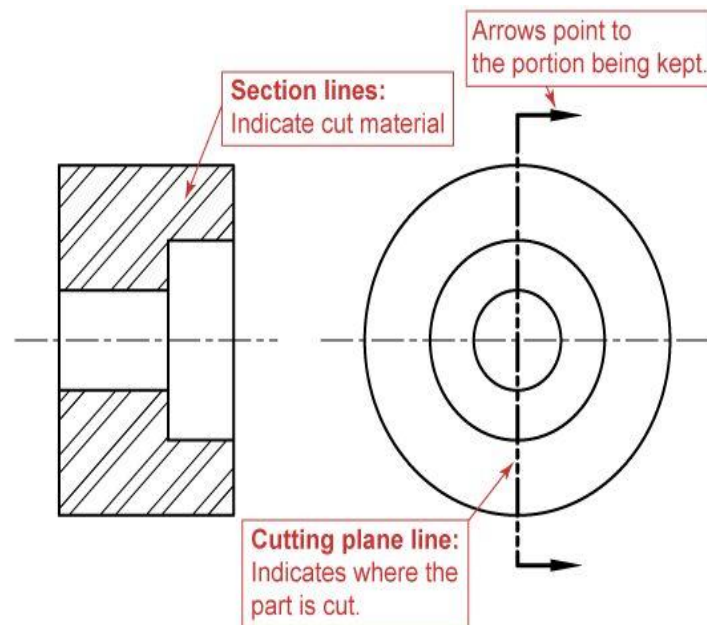
boundaries. It can also be used to set the limits of partial views or sections.



**Figure 10: Freehand break lines**

### 11. Hatching line (or section line)

Hatching or section line is used to indicate the sectional view or outlook of surfaces produced after making arbitrary cuts on an object. Hatching lines are usually thin lines drawn at an angle of 45° and equally spaced to indicate cut or sectioned material.



**Figure 11: Hatching lines**

## 12. Hidden line

Hidden line is the type of technical drawing line that is used to describe features that cannot be seen when objects are viewed from a particular direction. Hatching lines consist of short and equally spaced thin dash lines and spaces. The dashes are usually three to four times longer than the space between them.

It is recommended that the dashes used in hidden lines should be approximately 3 mm long and have a space of 1.0mm between each dash. On the other hand, the length of the dashes and the space between them can be slightly altered, depending on the scale and size of the drawing.



**Figure 12: Hidden line**

## 13. Leader line

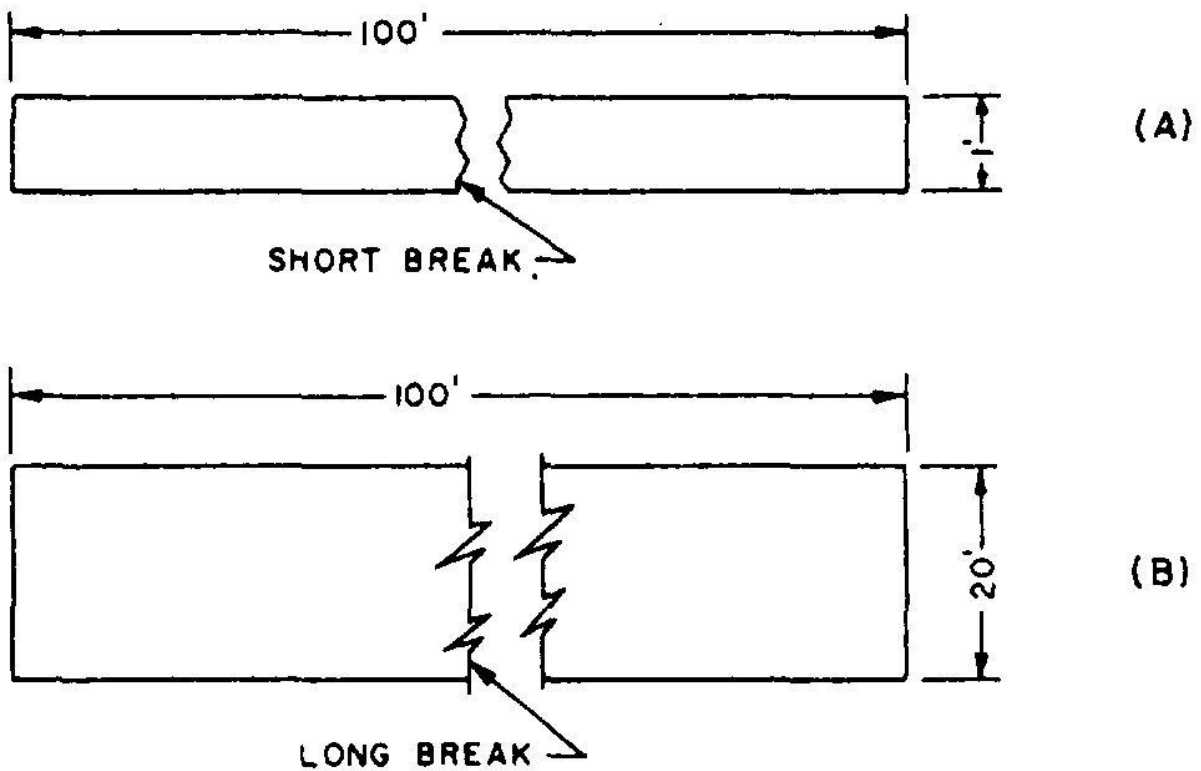
Leader line is used to represent the dimensions of an object, feature, or structure whenever such dimensions are not clear enough after being placed beside objects, features, or drawn structures.



**Figure 13: Leader line**

**14. Long break line (or continuous thin straight line with zigzags)**

Long break line or continuous straight line with zigzags (see (B) below) shows continuity of partially interrupted views. They are very suitable for computer-aided design (CAD) drawings.

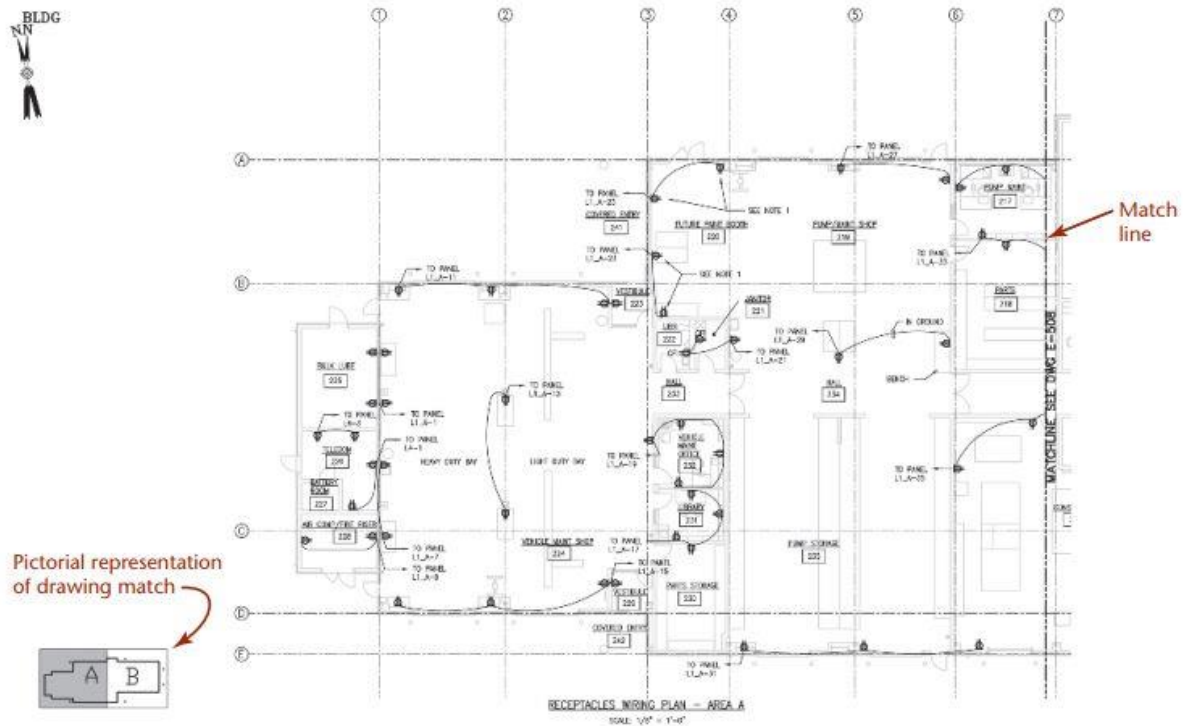


**Figure 14: Long break lines**

## 15. Match line

Match line is the type of technical drawing line that is used to indicate a cut line between two or more drawings whenever the area on one drawing paper is too large for all the different drawings to occupy. Match lines are lines that are added to a conglomeration of drawing views to indicate where a view is split or where they have been merged.

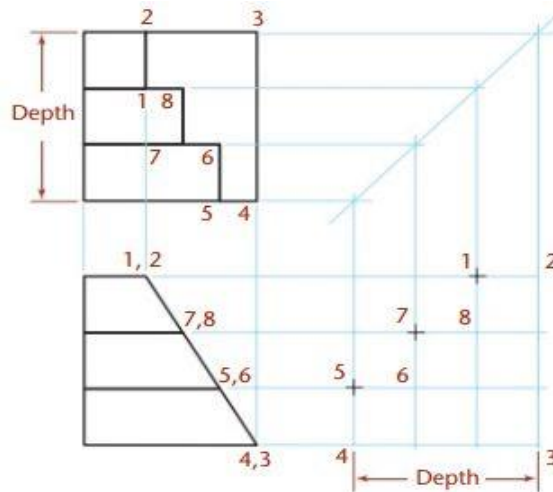
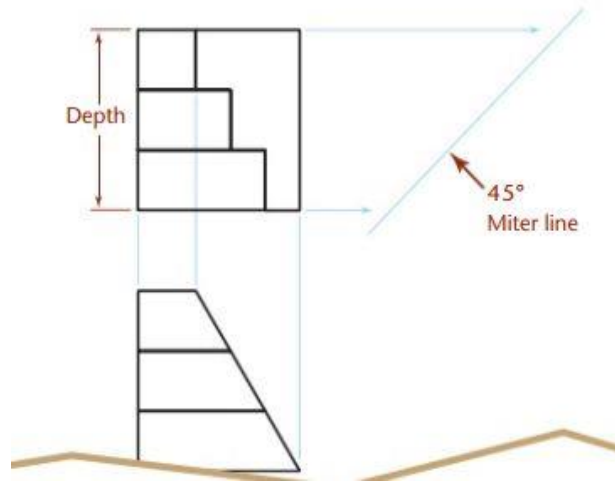
In large or complex drawings (for instance, civil and electrical drawings) such as the electrical drawing in the figure below, only one entire view may not be fully or clearly expressed on a single sheet. Therefore, for drawings that extend from one sheet to another sheet, match lines are used to show how the drawing on one sheet matches with another one.



**Figure 15: Match line used on an electrical drawing for a part of a building**

## 16. Miter line (inclined projection line)

Miter line is used to project and transfer the dimensions (depths, heights, widths) of an object so that its side view can be shown at the right-hand and left-hand sides of the front or top view of the same object, depending on whether one uses first-, second-, third-, or fourth-angle drawing/projection, respectively).



**Figure 16: Miter line**

## 17. Phantom line

Phantom line is a thin line that consists of alternating long dashes that are separated by two short dashes and are often used to represent the direction of movement of an object or a part of an object in alternate positions. Phantom lines can also be used to indicate adjacent features or objects.



**Figure 17: Phantom line**

### 18. Stitch line

Stitch line is the type of technical drawing line that is used to indicate the sewing or stitching lines on artifacts, objects, and even clothing. Stitch line consists of a series of very short dashes that are evenly spaced and approximately half the length of a typical dash or hidden line.



**Figure 18: Stitch lines**

### 19. Symmetry line

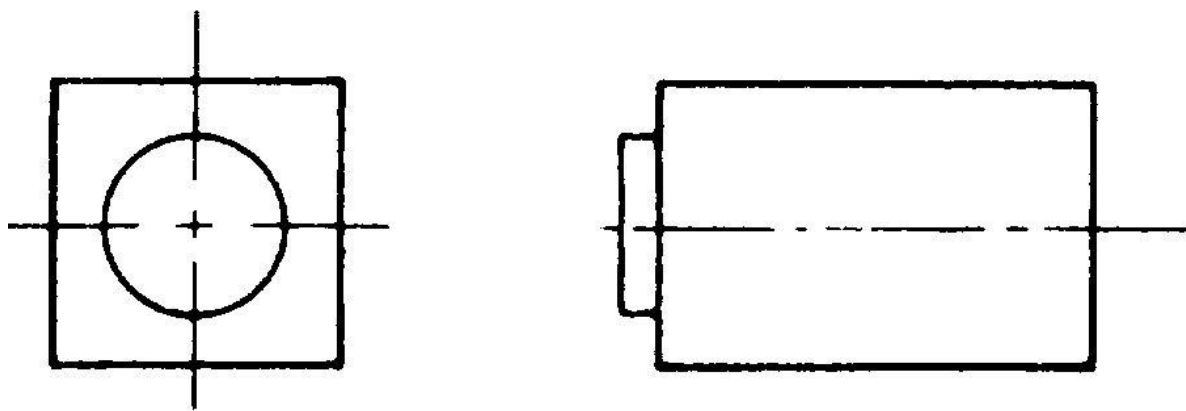
Symmetry line is an imaginary line that passes through the centers of areas, shapes, objects, and drawn structures; in most cases, symmetry lines divide objects into equal and similar-looking parts.



**Figure 19: Symmetry lines**

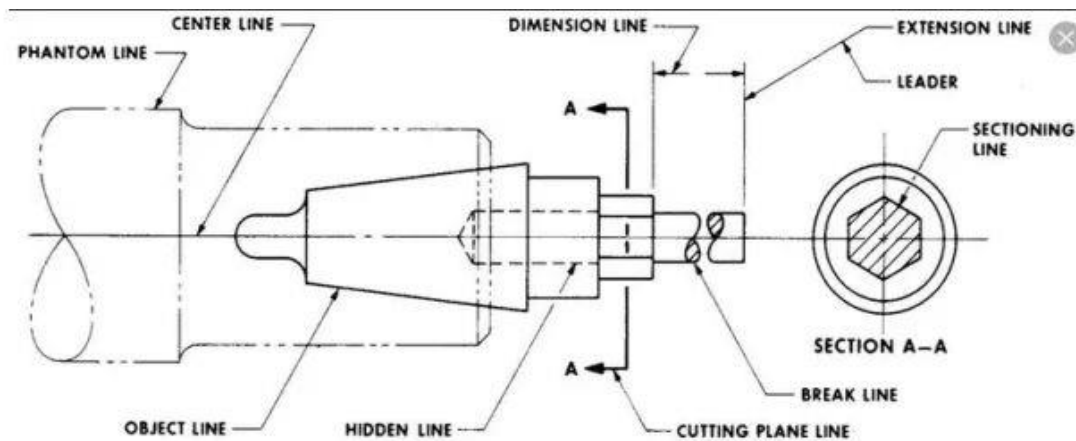
**20. Visible line**

Visible line is a thick and continuous bold line that is used to indicate the visible edges of objects. Visible lines usually stand out when compared with other lines.

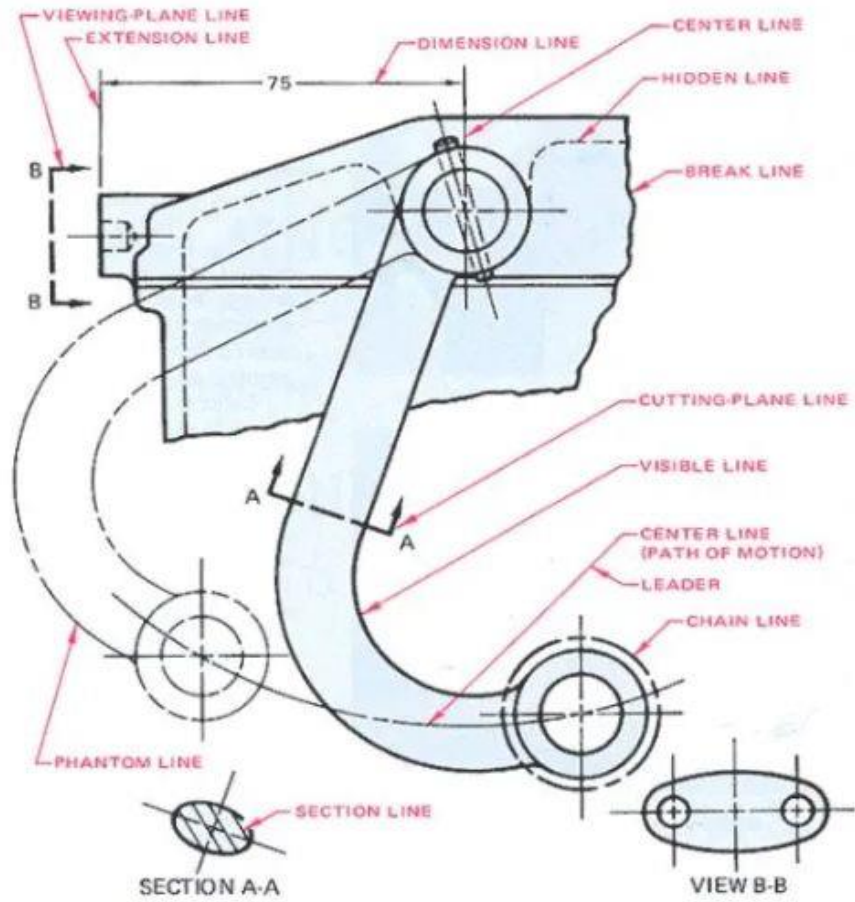


**Figure 20: Visible lines**

The figures below are pictorial views of various types of lines used in technical drawing:







**Figure 21: Pictorial views of various types of lines line**