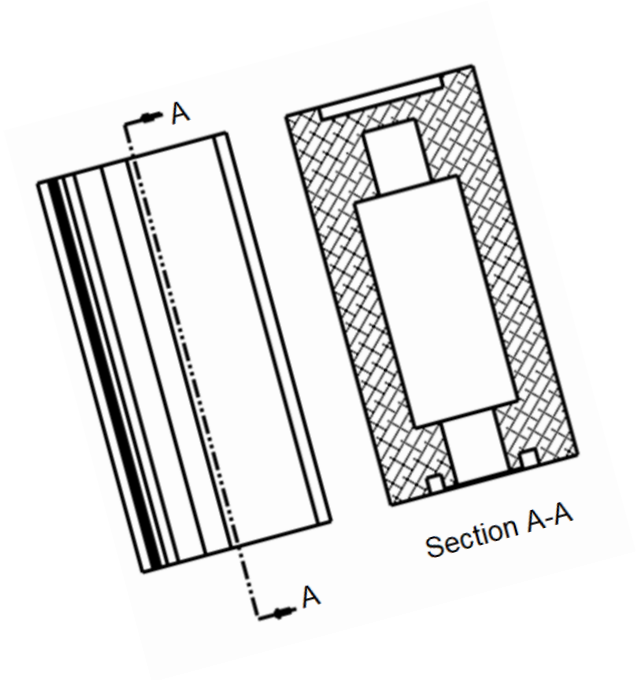
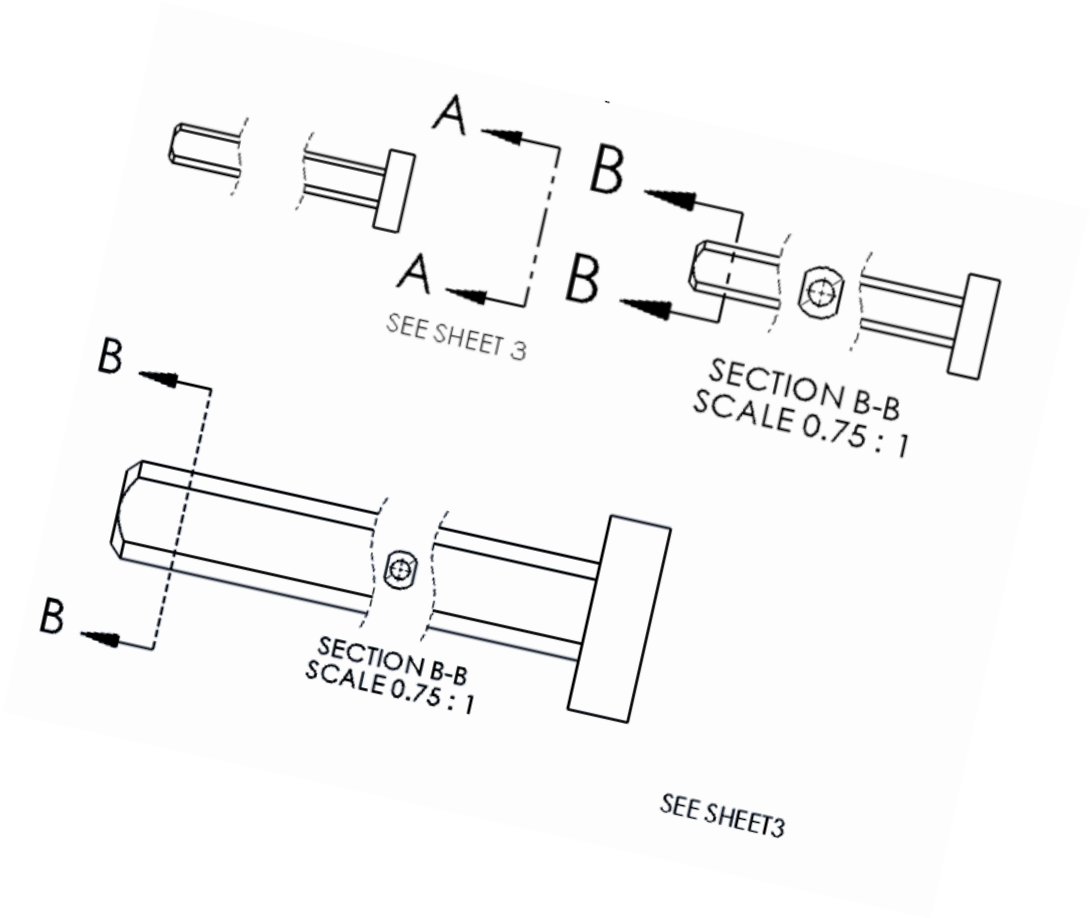




Non Standard Drawing Views

Non-standard views are used when the standard views are not enough.

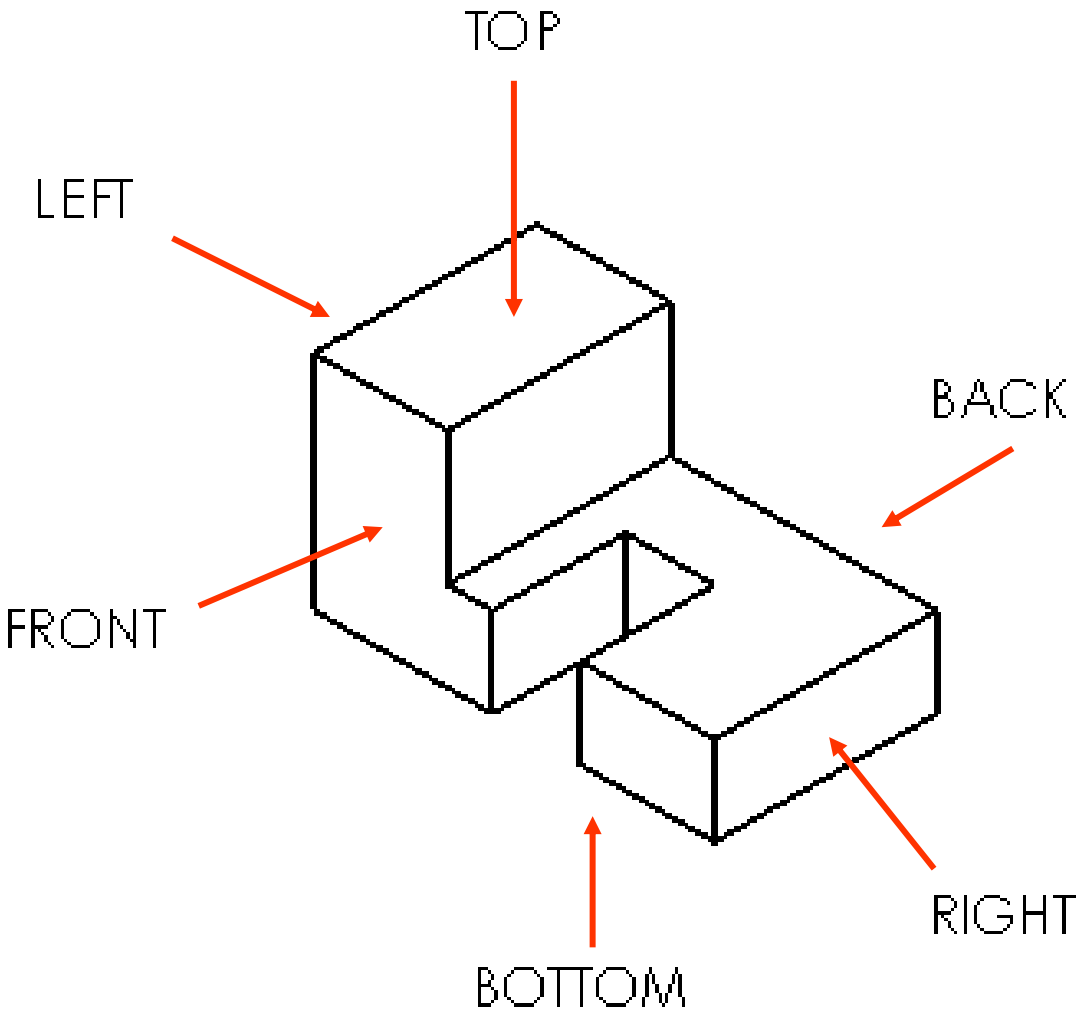
Question:

How many views do you need for a Multiview drawing?

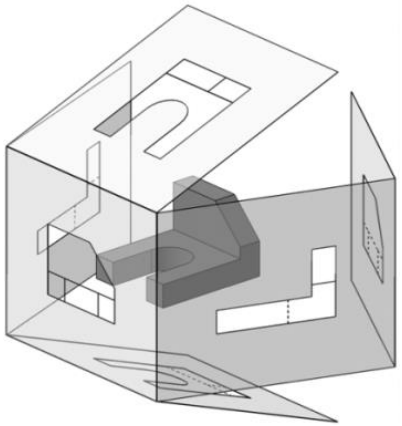
Answer:

As many as are required to define the **true shape** and **true size** of the part or assembly.

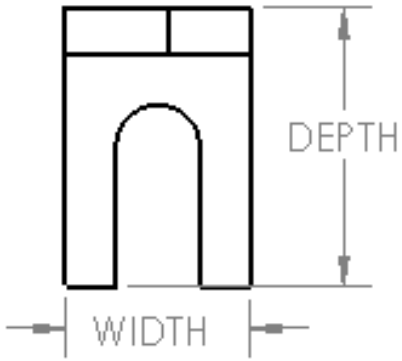
First use the standard views

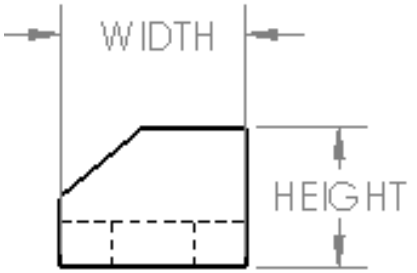


The Six Principle Orthographic Views

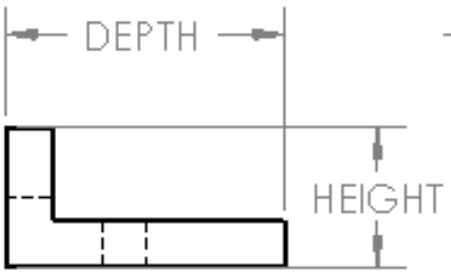


TOP

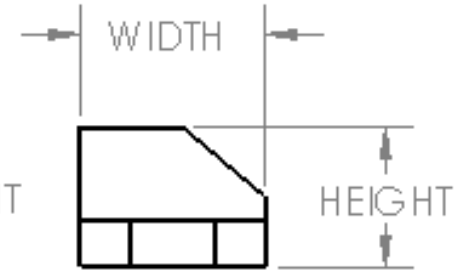




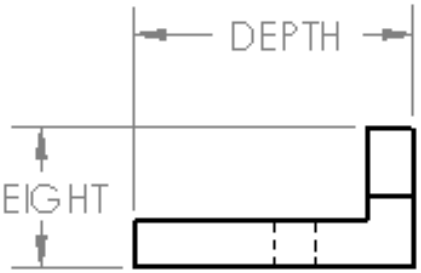
BACK



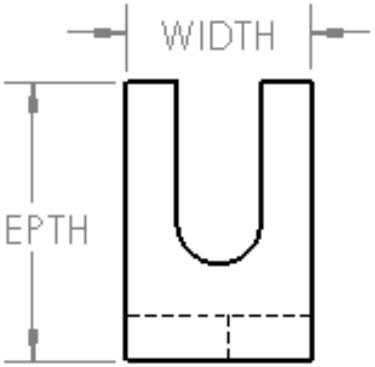
LEFT



FRONT

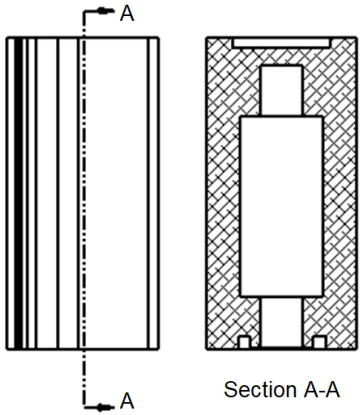


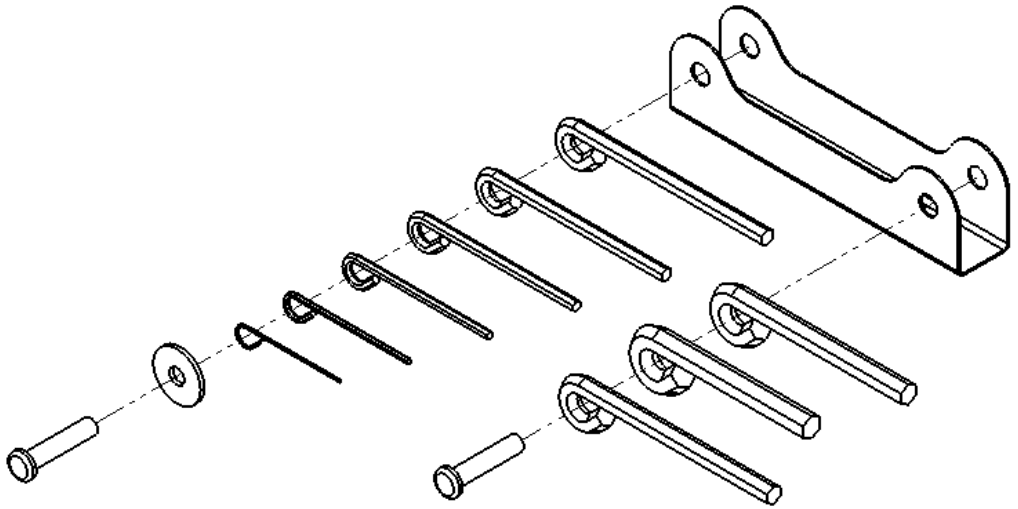
RIGHT

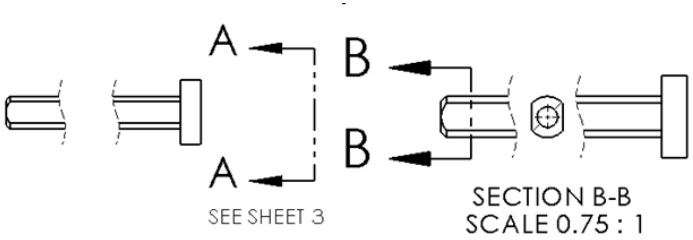


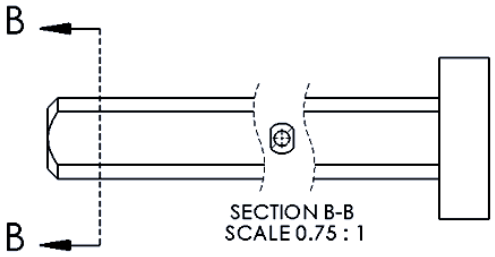
BOTTOM

Use **additional non-standard drawing views** when the **six principal views** are not enough.

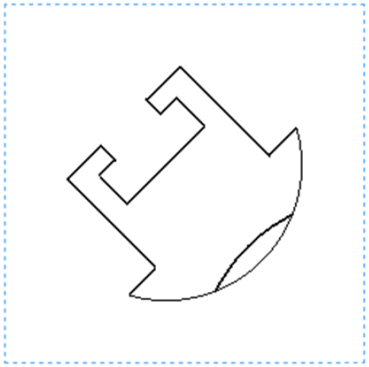




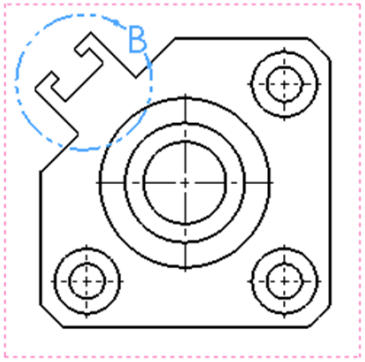




SEE SHEET3

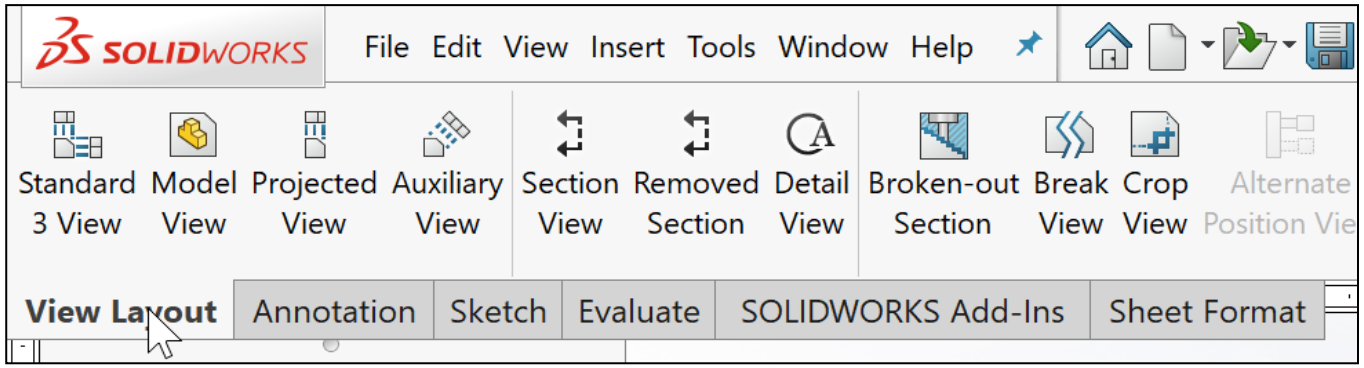


DETAIL B
SCALE 4 : 1



Non-standard drawing views

- Section
- Detail
- Broken
- Crop
- Alternate Position
- Auxiliary
- Exploded



SOLIDWORKS drawing document command bar

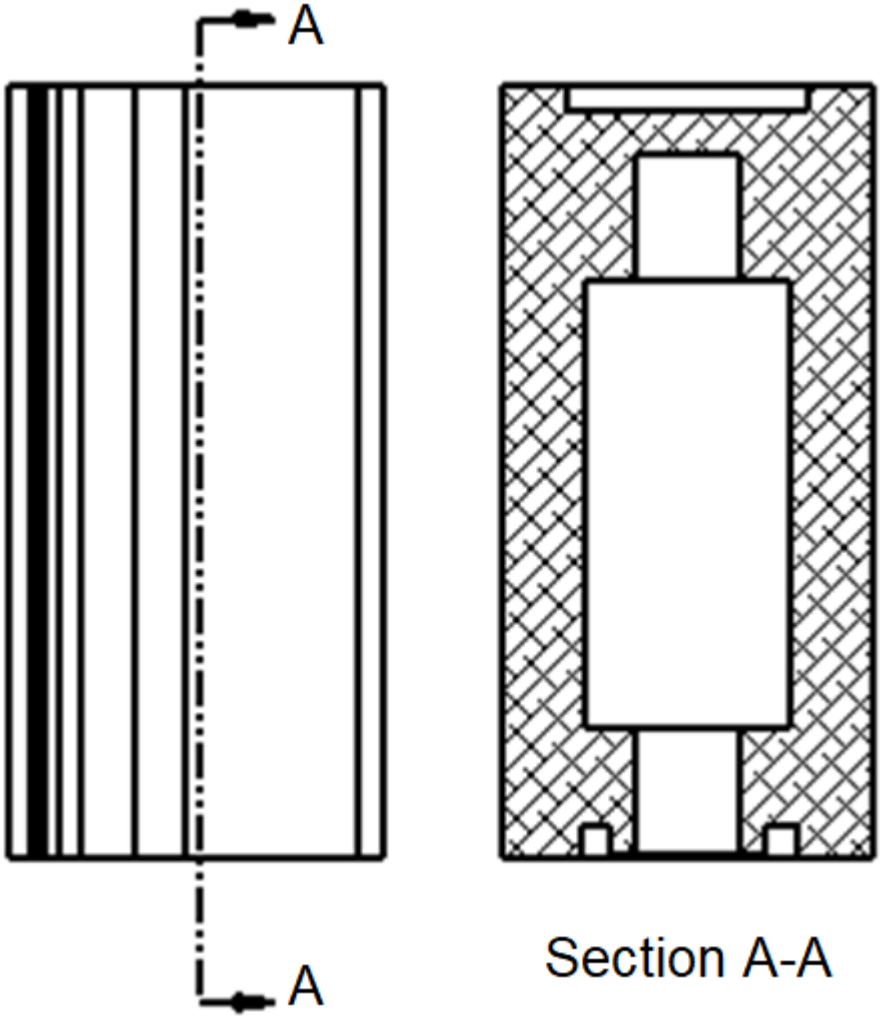
Sometimes **annotations** (notes) are necessary in these views.

Section View

A **Section view** is used to expose the inside of a part.

A new drawing view is defined by cutting an existing view with a section line.

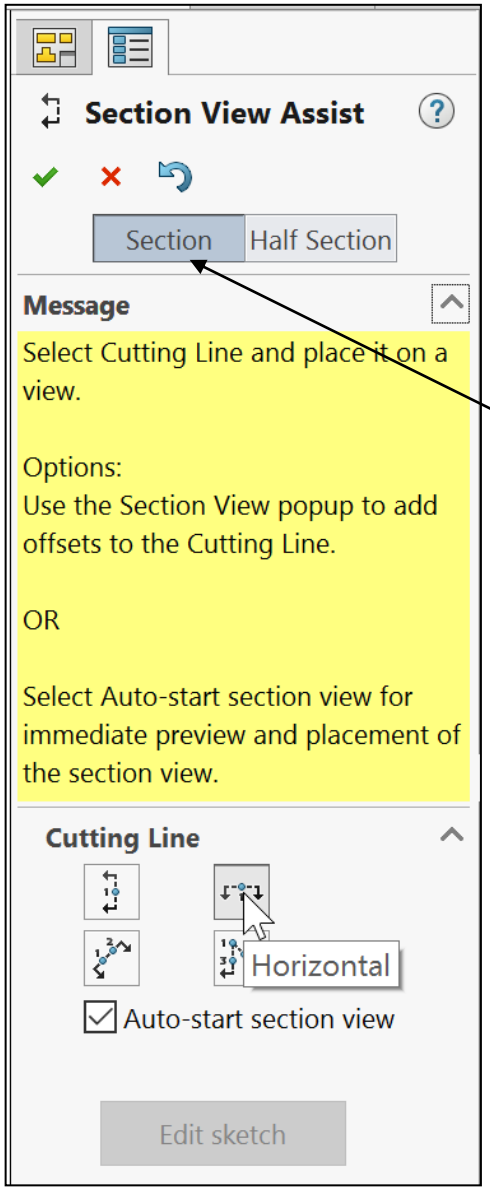
Think of the section line as an imaginary **Cutting Plane**.



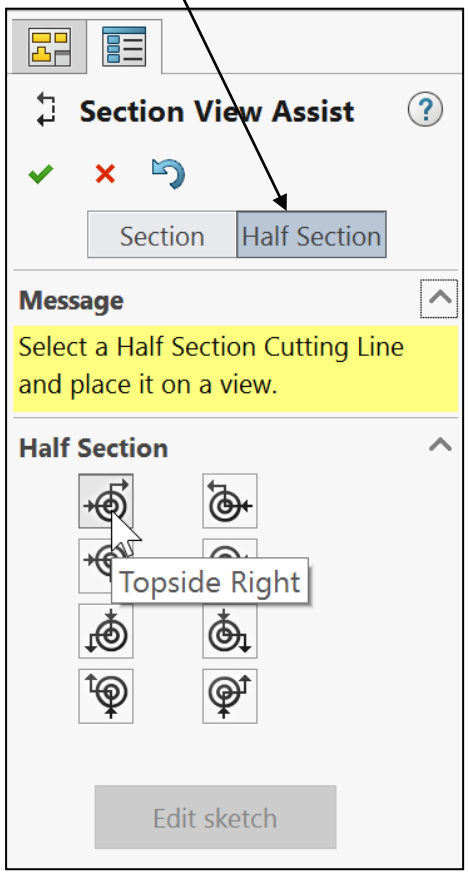
If the Section view has a different scale than the sheet, the scale needs to be supplied as an annotation.

Section View

In SOLIDWORKS you create a section view **(Child view)** from an existing view **(Parent view)**

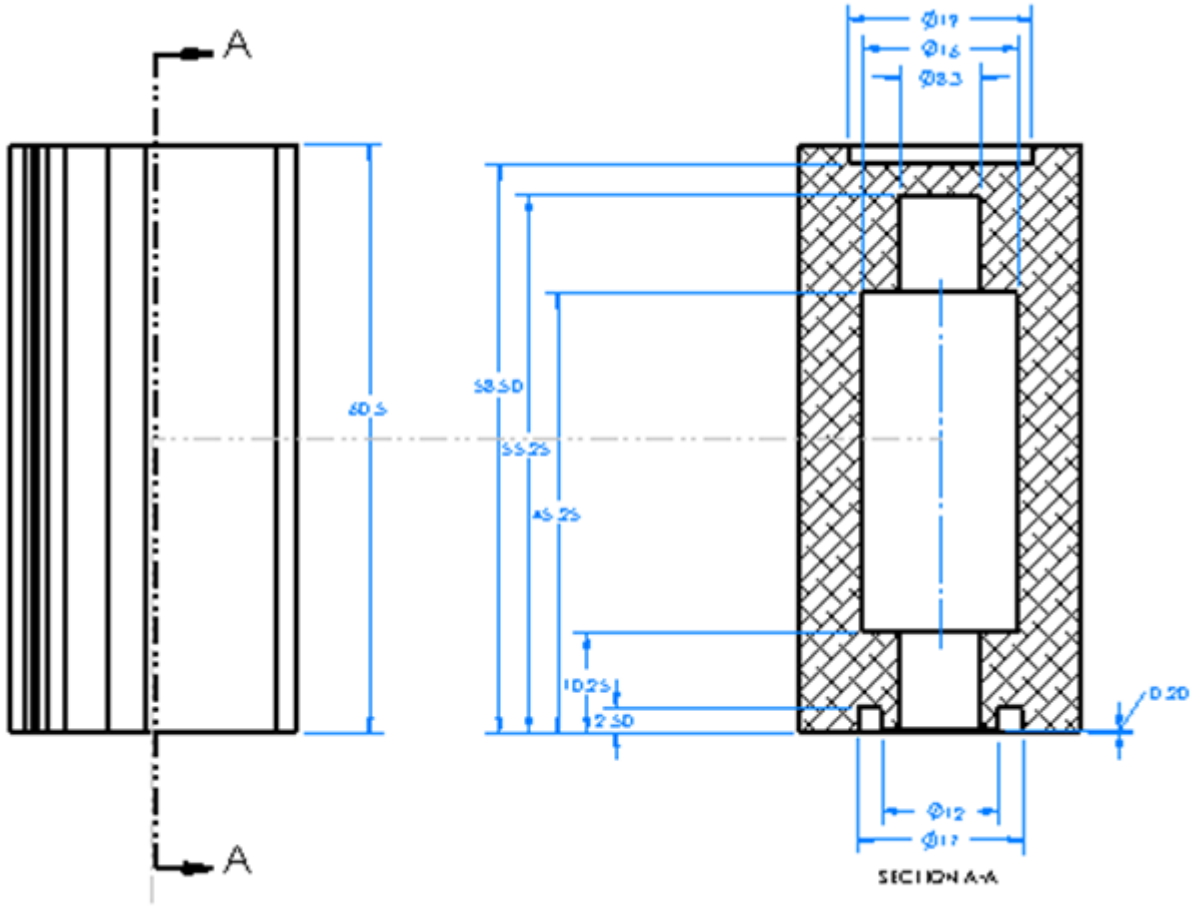


This is the SOLIDWORKS Section View PropertyManager. It has 2 tabs.

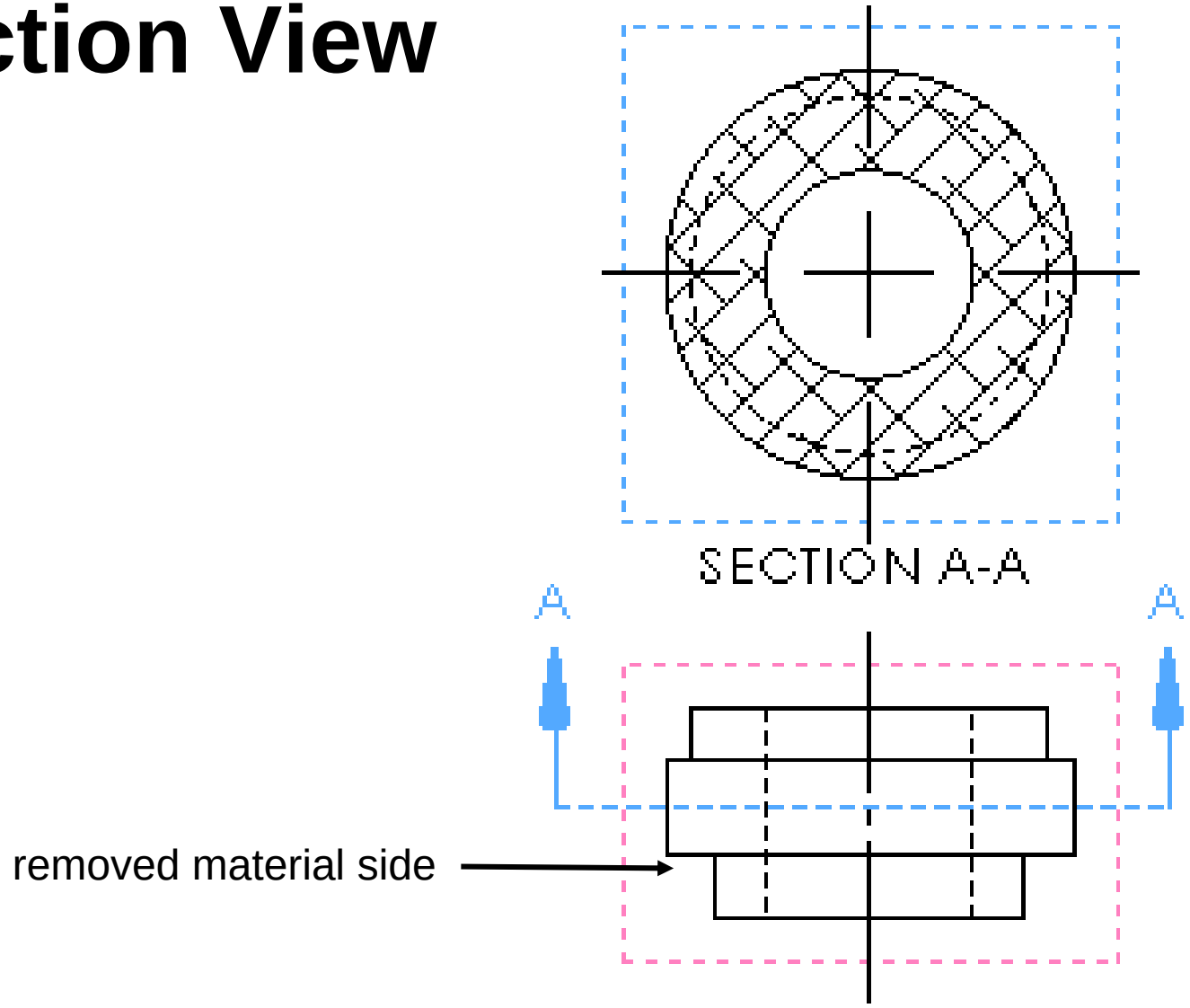


Different types of Section Views

- Full
- Half
- Offset
- Aligned
- Rib
- Broken-out
- Removed
- Revolved / Rotated

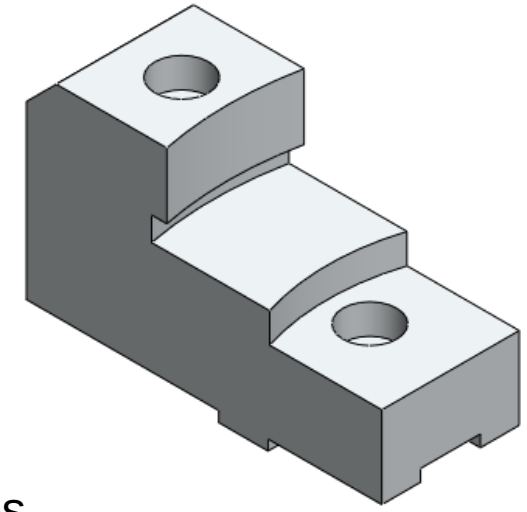


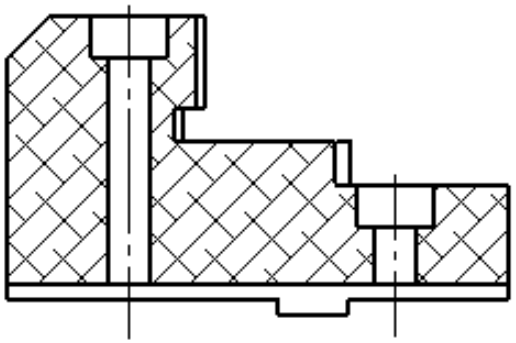
Full Section View



The section view can be a **straight cut section** or an **offset section** defined by a stepped section line.

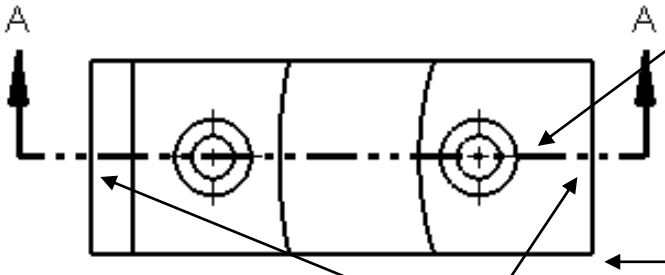
Full Section View





SECTION A-A

Cross-hatch cut surfaces.
Section lines must be bounded by visible lines

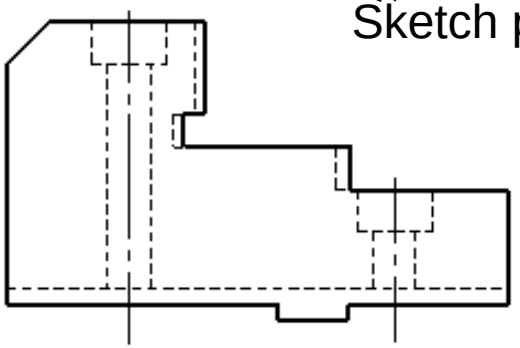


Show cutting plane in adjacent view

Arrows indicate direction of sight.

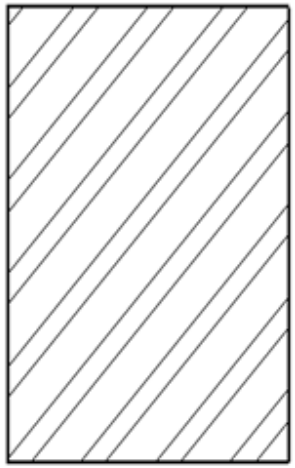
removed material side

Sketch passes thru both ends

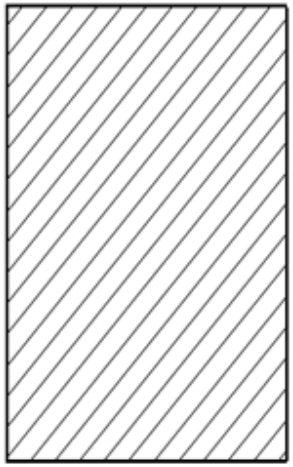


Section View - Lines Types

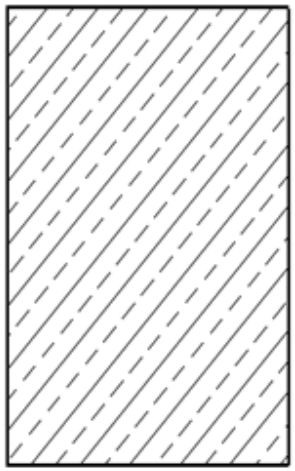
Section lines identify the kind of material the part is made from.



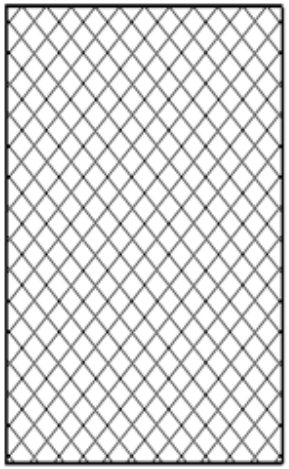
STEEL



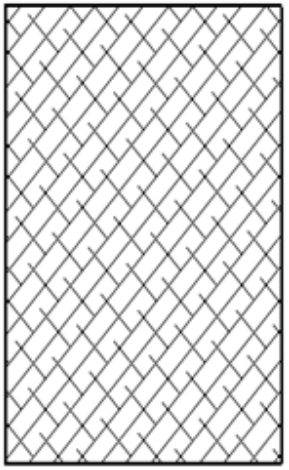
CAST IRON



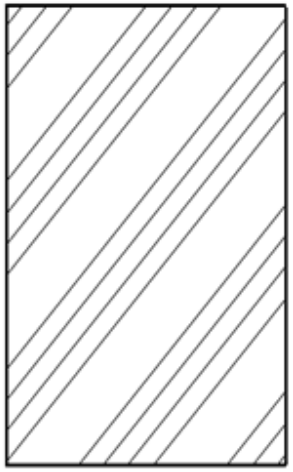
COPPER / BRASS



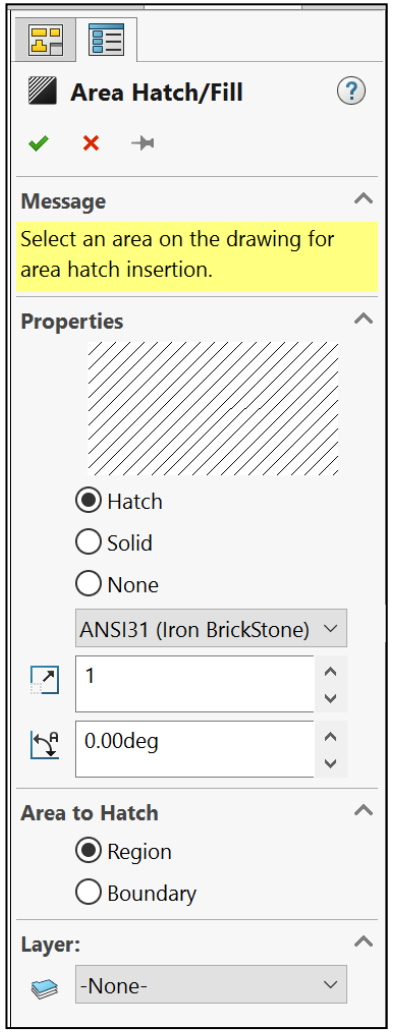
PLASTIC



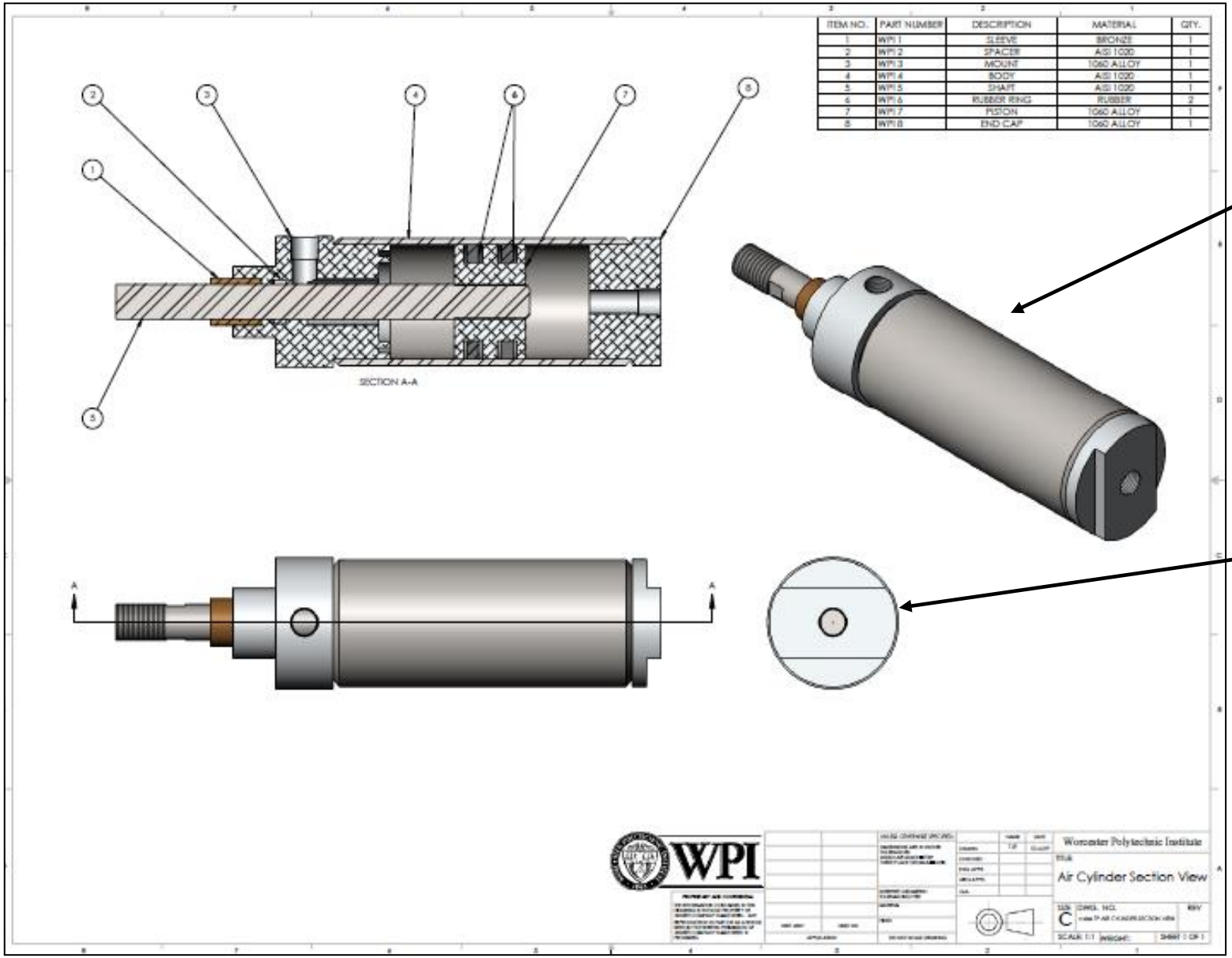
6061 ALLOY



RUBBER



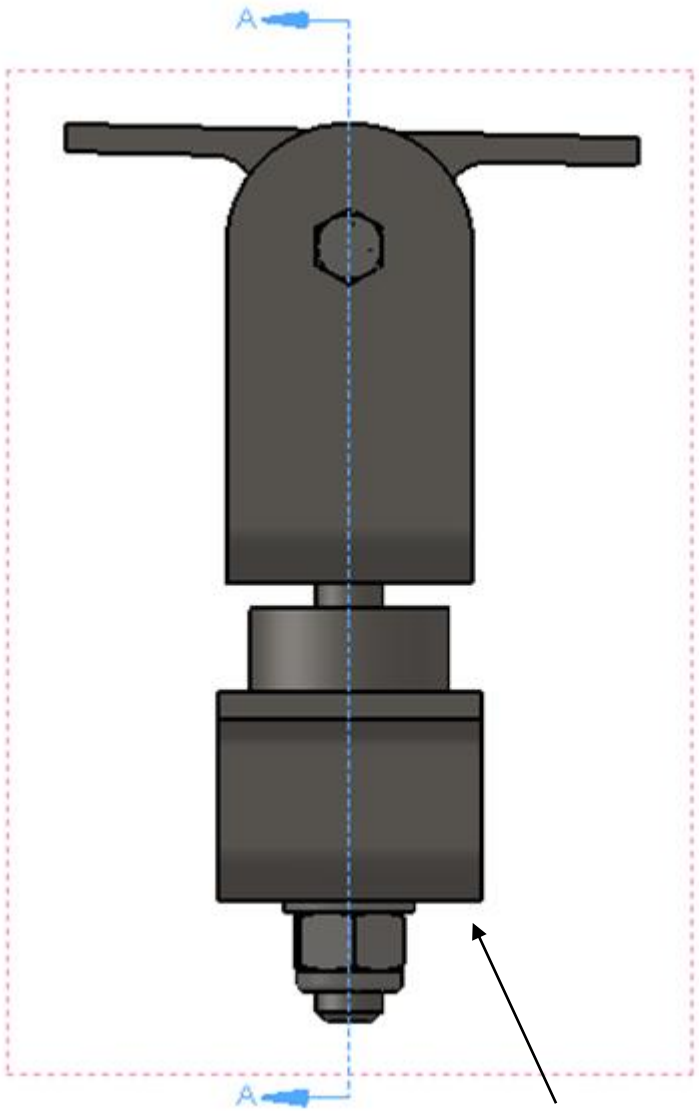
Full Section View - Assembly

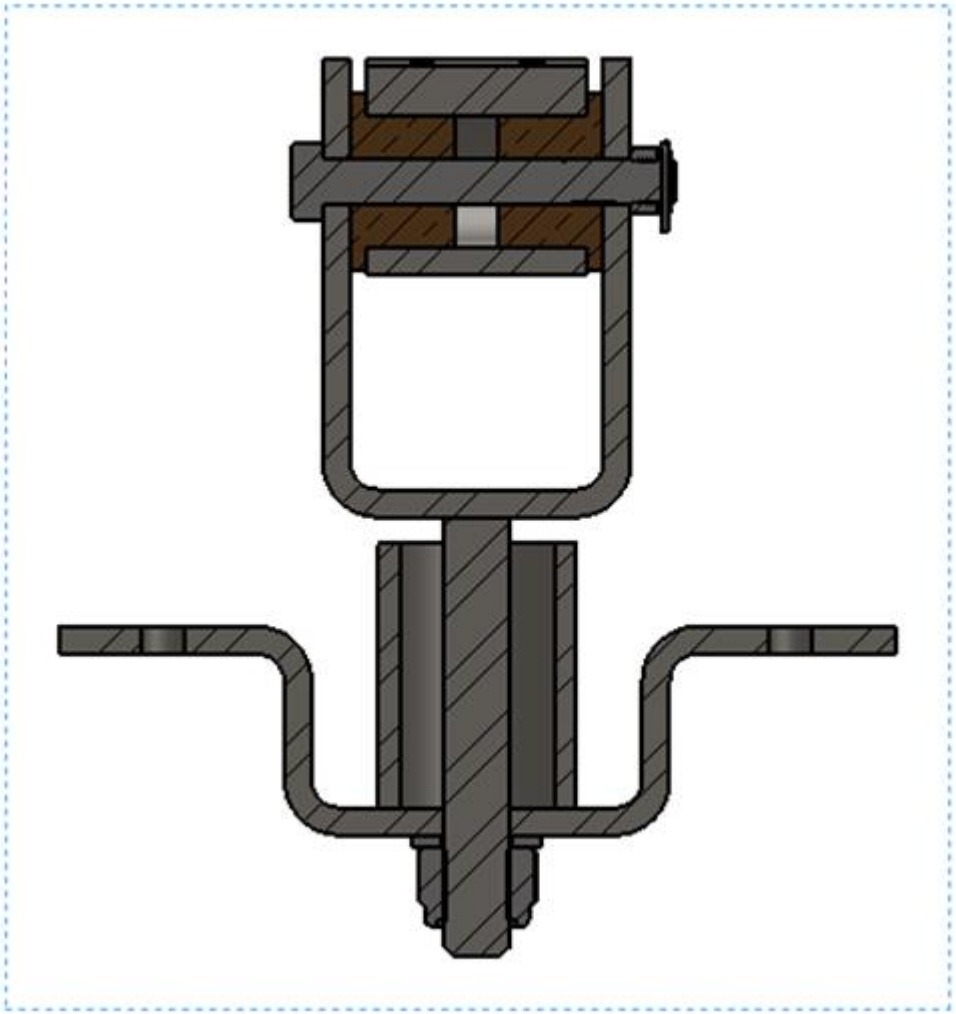


Is this view needed ?

Is this view needed ?

Full Section View - Assembly



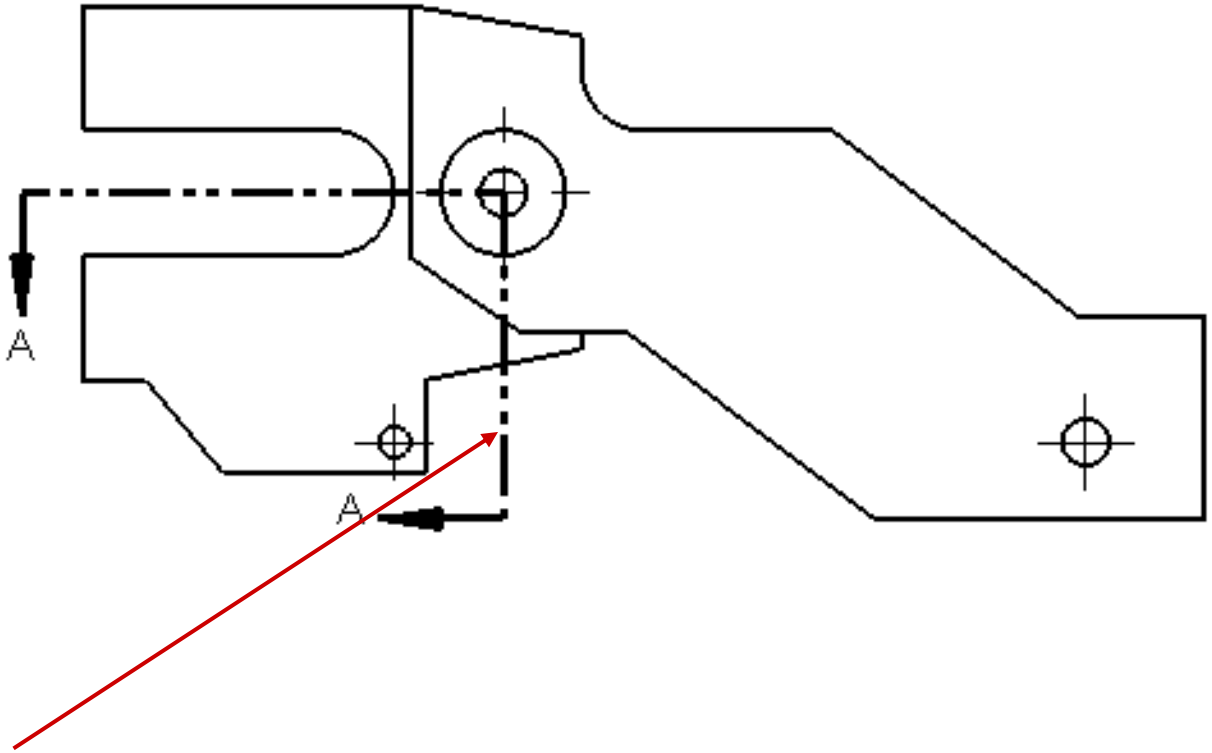


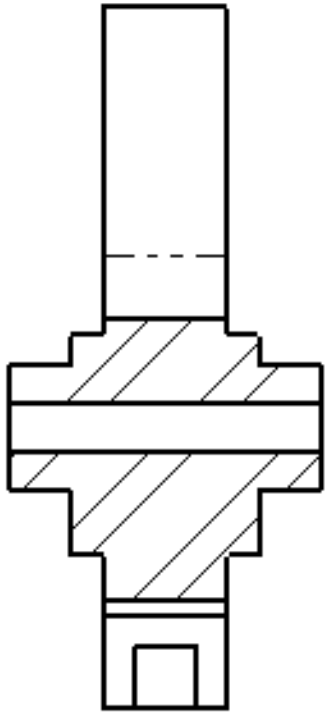
SECTION A-A

removed material side

Aligned Section View

The section view can be a straight cut section or an offset section defined by a stepped section line.



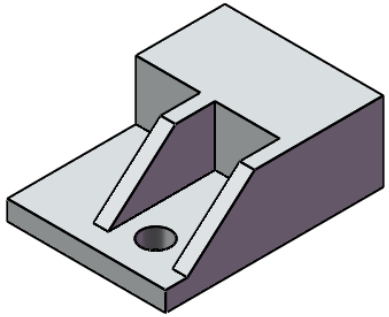


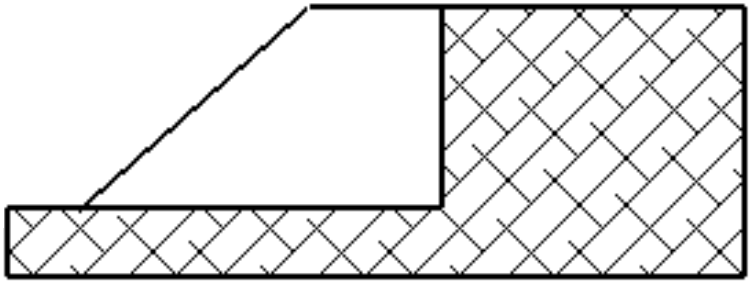
SECTION A-A

Note the Sketch for this view

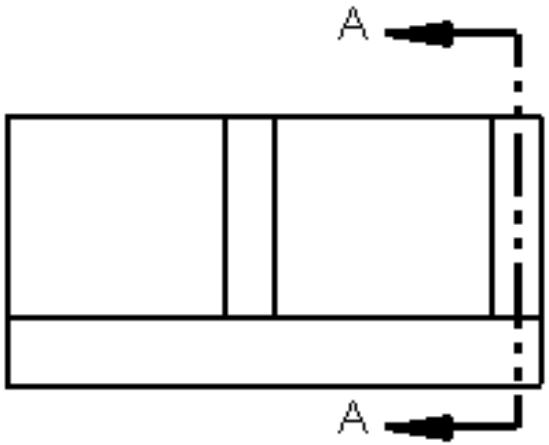
Section of a Rib

To avoid a *false impression of thickness*, ribs are normally not sectioned.

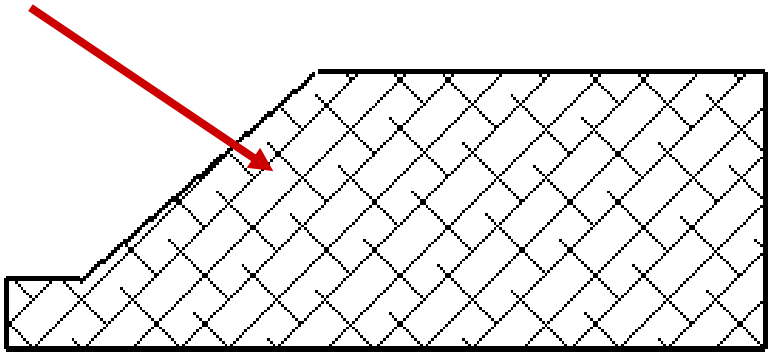




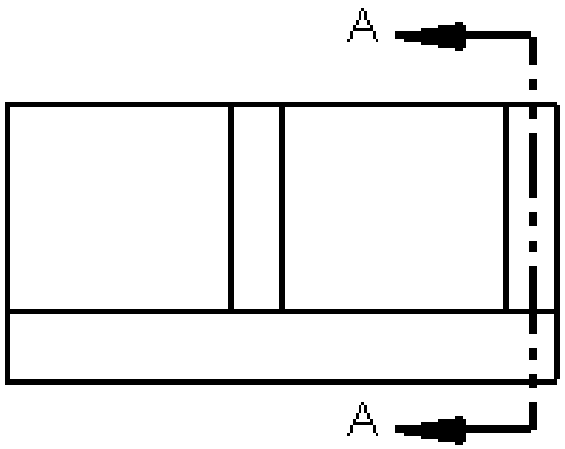
SECTION A-A



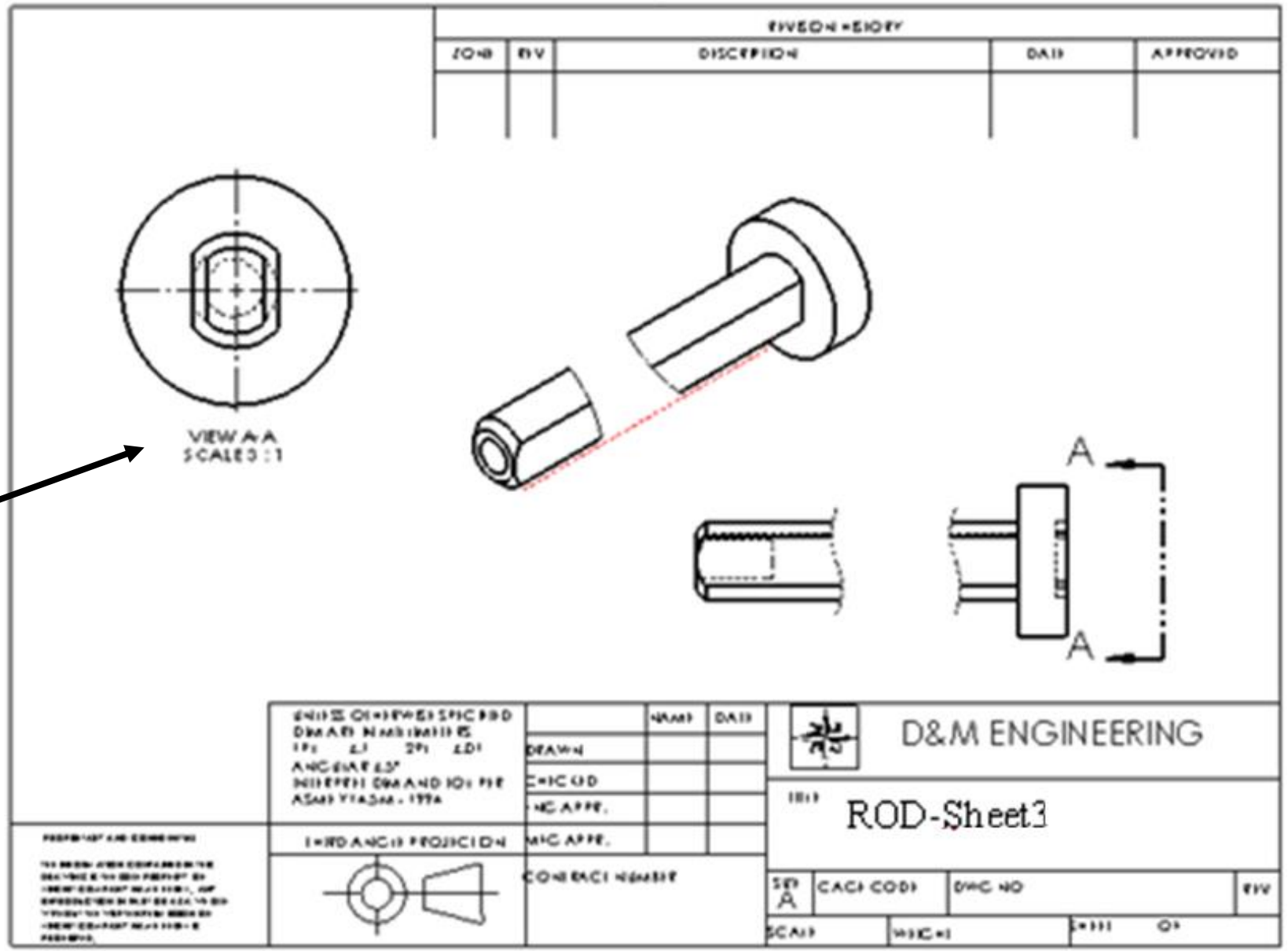
You do have the option to display the rib section.



SECTION A-A



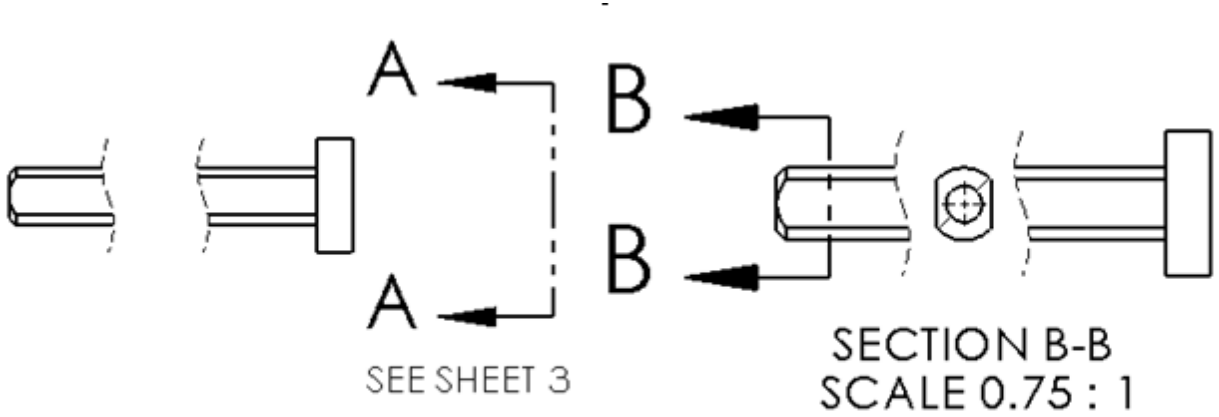
Section View – Removed

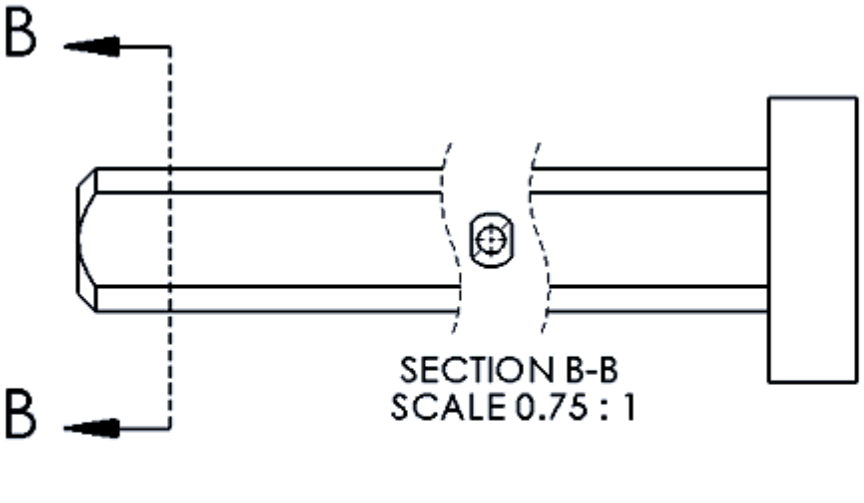


Removed View is at a 3:1 scale.

Revolved Section view (aka **Rotated Section view**)

A Broken view can be combined with **one or more Section views** to create a Revolved section view.





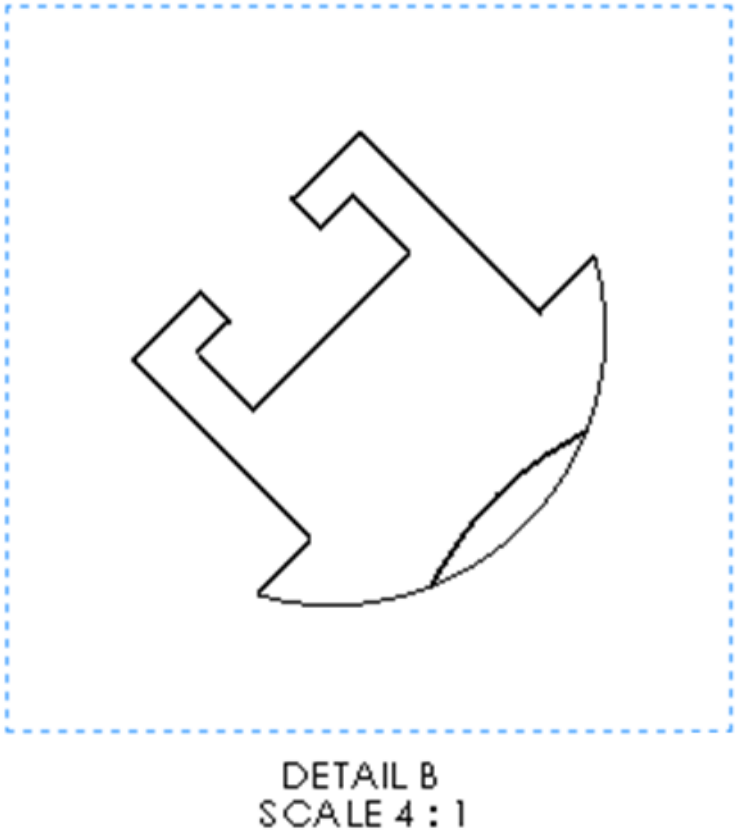
A Vertical Break view is used to represent the Long Rod configuration with a constant cross section.

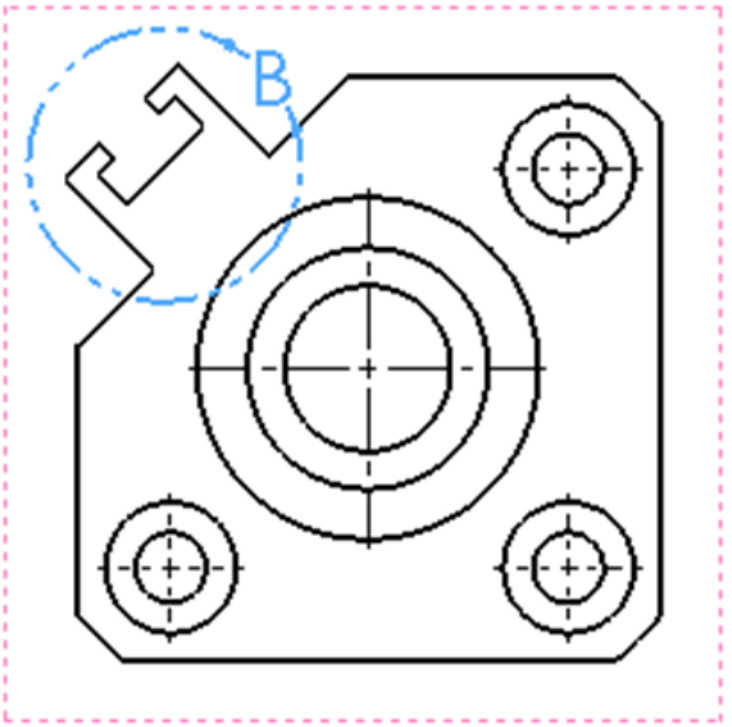
A Revolved Section view represents the cross section of the rod.

The Revolved Section is shown between the vertical break.

Detail View

An enlarged portion of an existing view





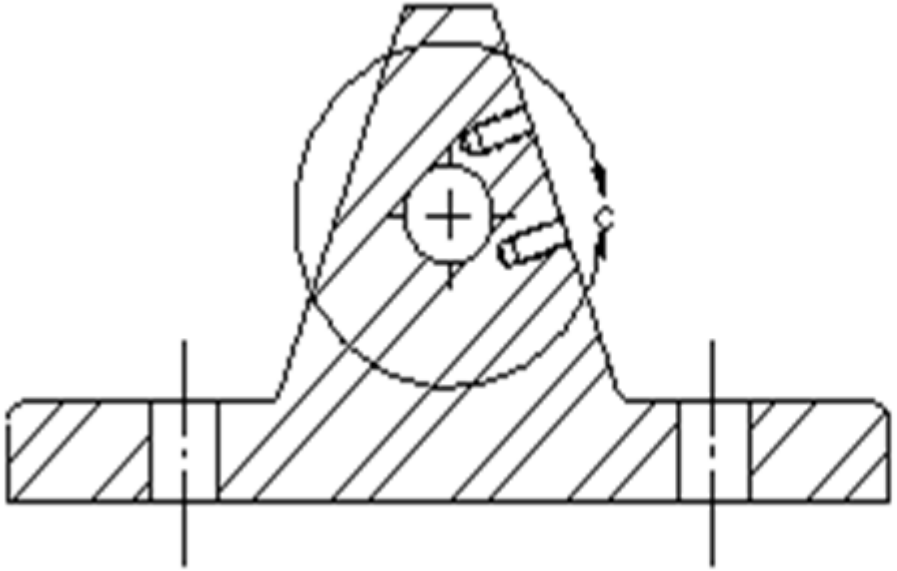
The enlarged portion is enclosed using **sketch geometry**, usually a circle or other closed contour.

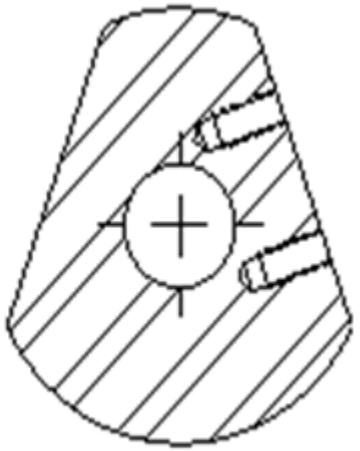
If the Detail view has a different scale than the sheet, the scale needs to be supplied as an annotation.

Detail views can be

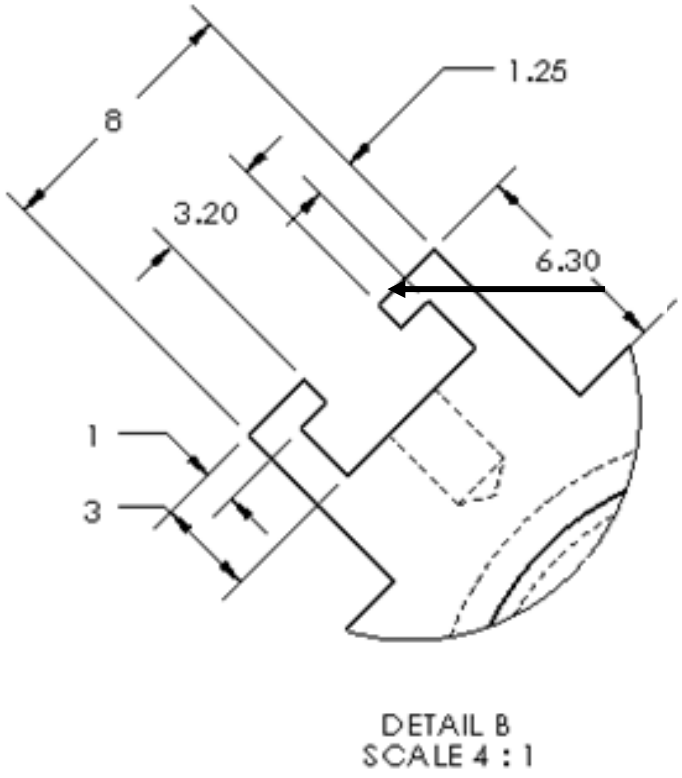
- an Orthographic view
- a non-planar (Isometric) view
- a Section view
- a Crop view
- an Exploded assembly view
- another detail view

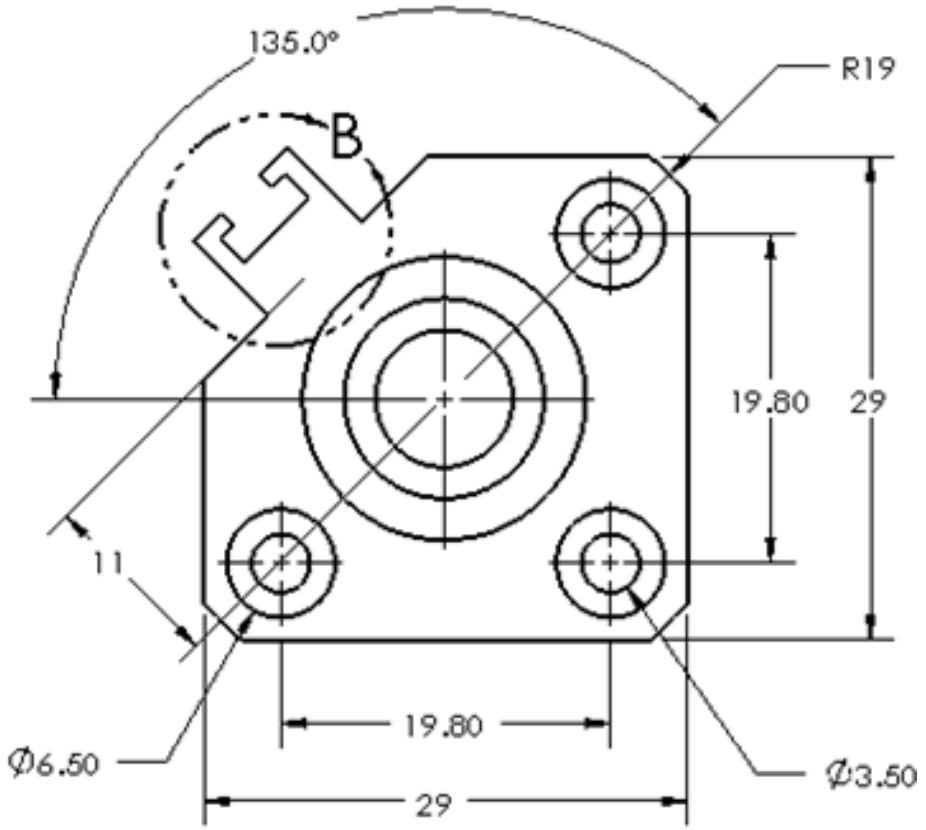
Detail of a Section view





Detail view with dimension

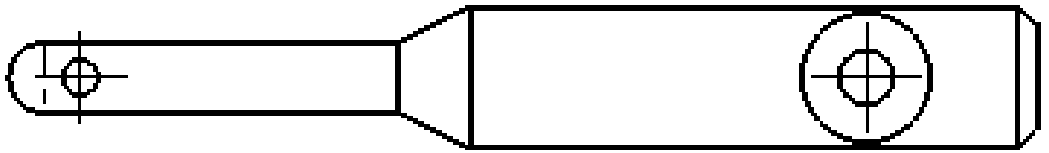




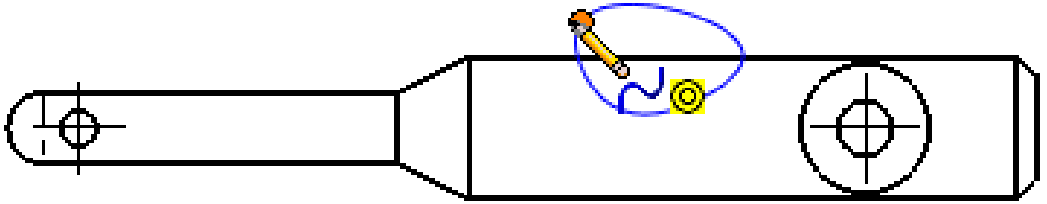
Broken out Section

used to cut away a portion of the assembly in a drawing view to expose the inside and add hatching.

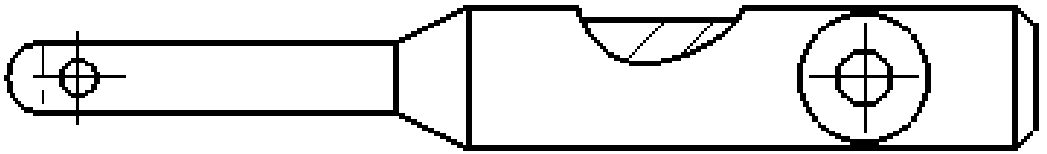
A Broken-out section is part of an existing drawing view, not a separate view.



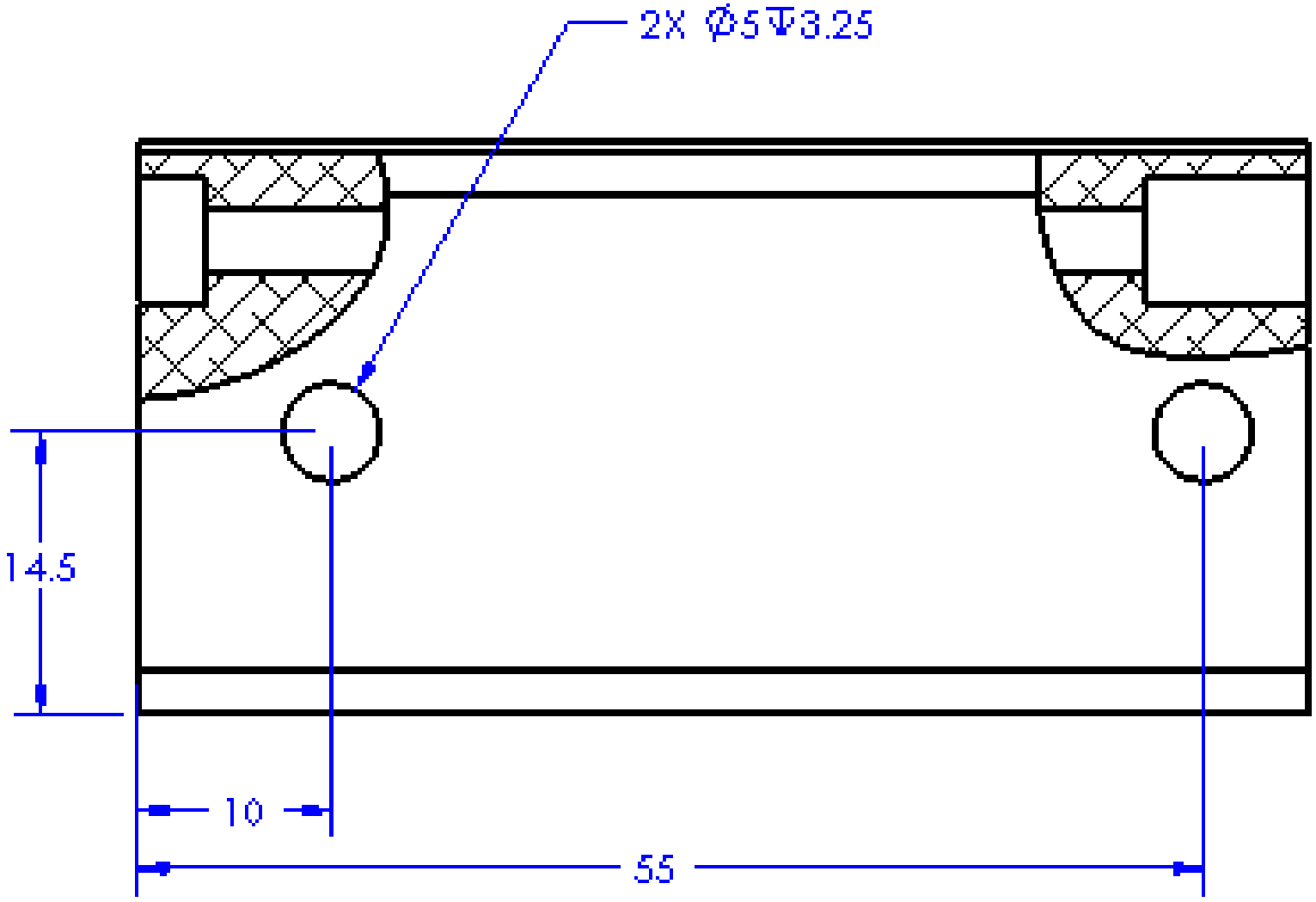
Material is removed to a specified depth to expose inner details.



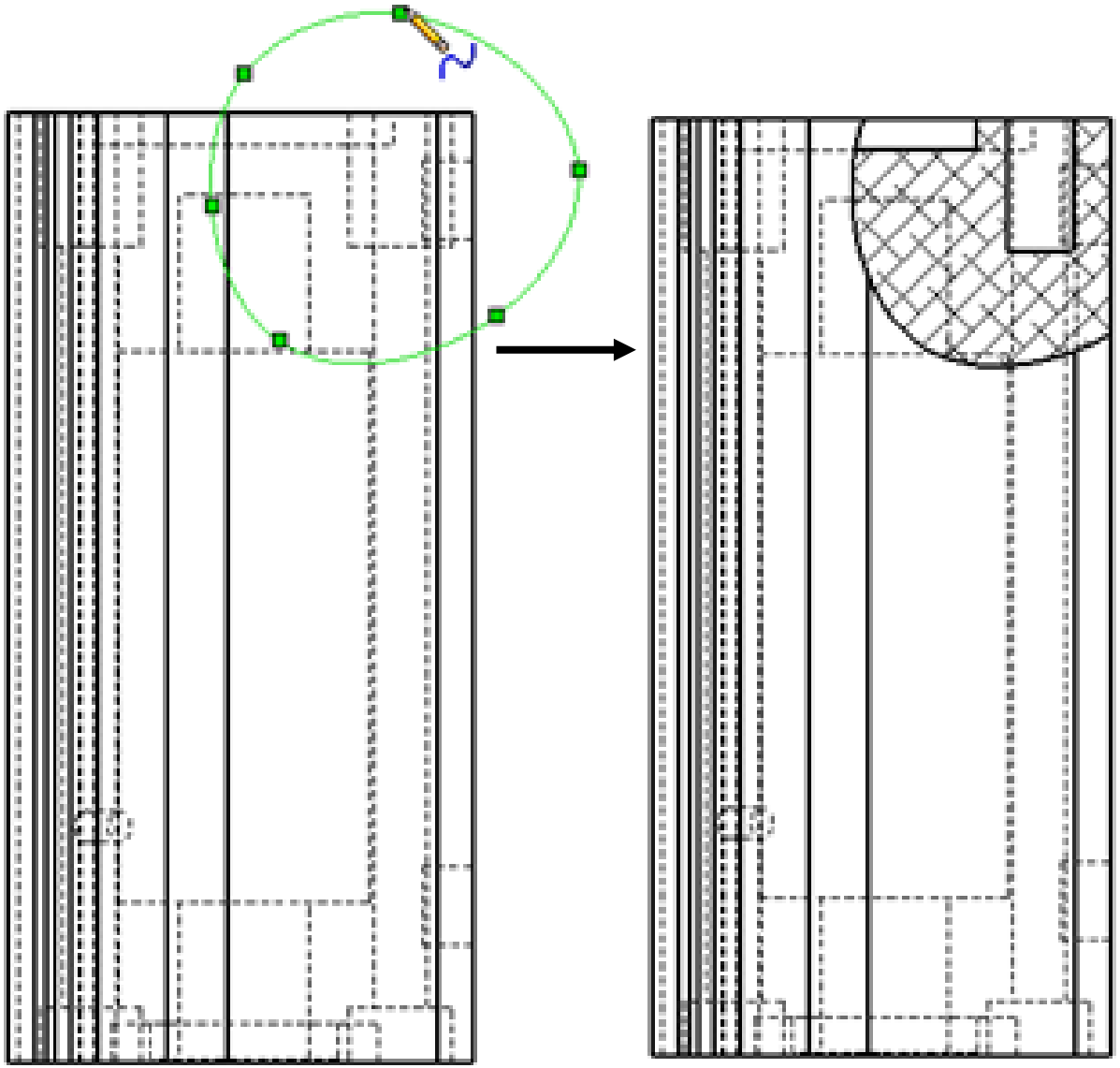
Hidden lines are displayed in the non-sectioned area of a broken section.



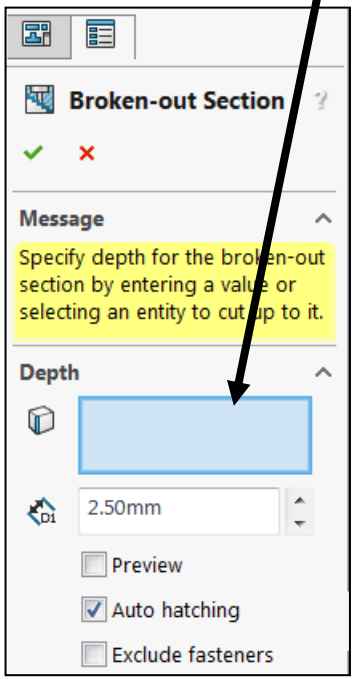
Broken-out Section



Broken-out Section

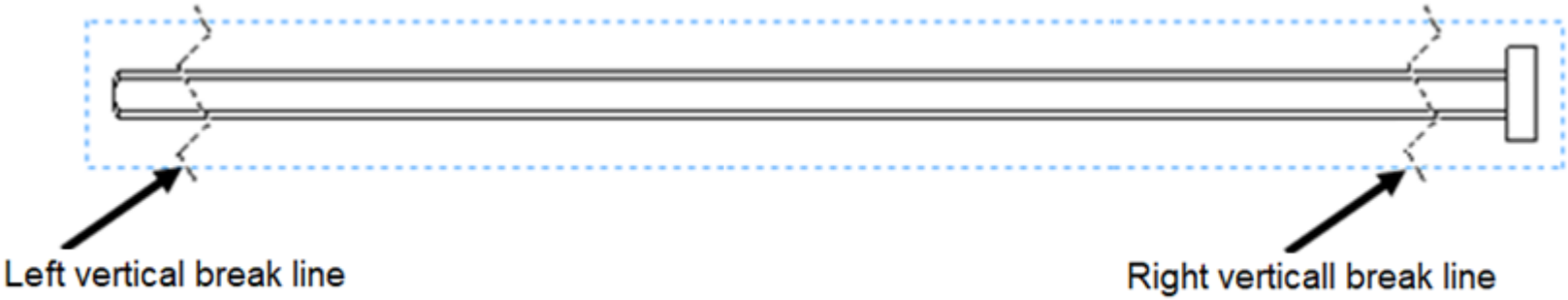


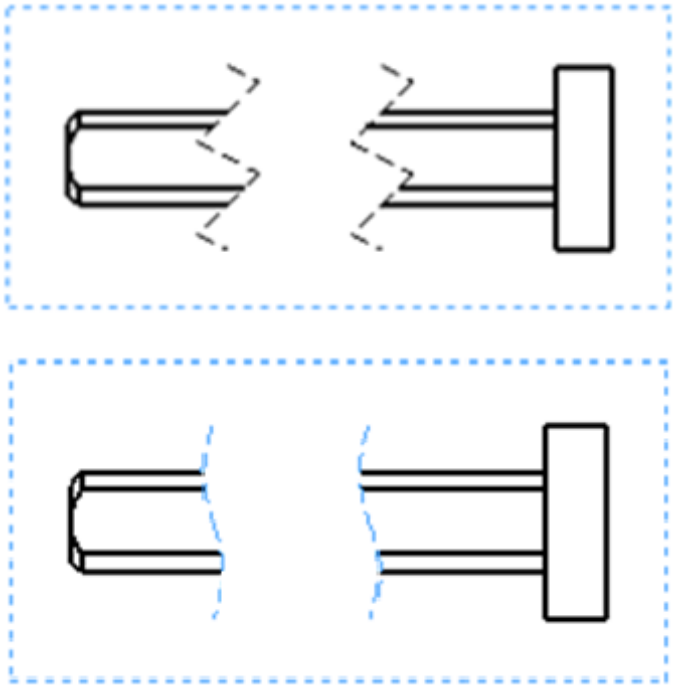
Depth can be added

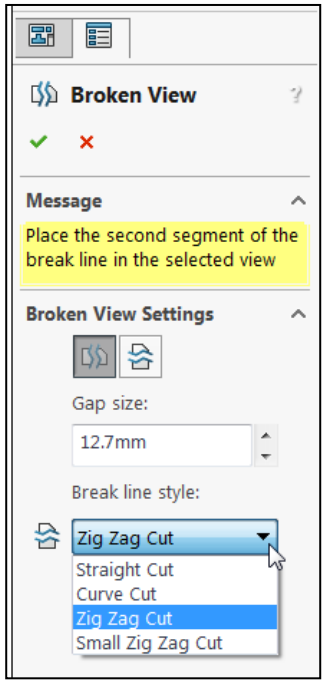


Broken View (aka Interrupted view)

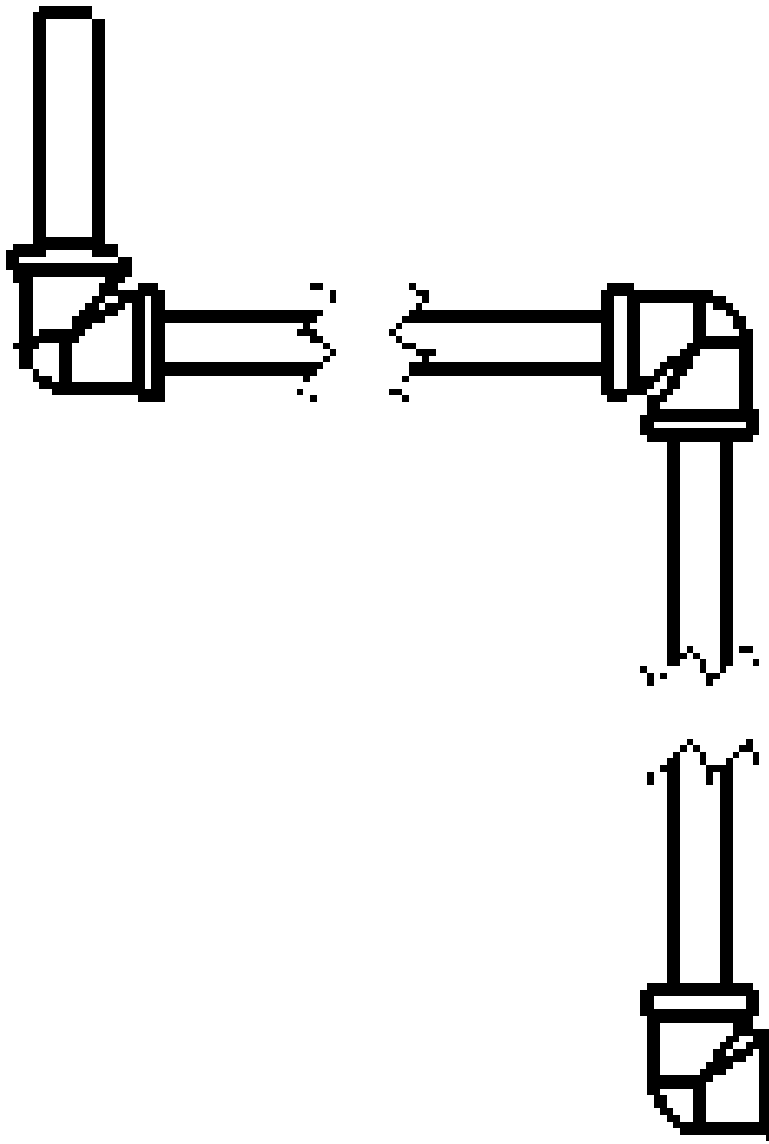
Makes it possible to display a long part at a larger scale on a smaller size drawing sheet. This is done by creating a **gap or break** in the view using a pair of break lines.

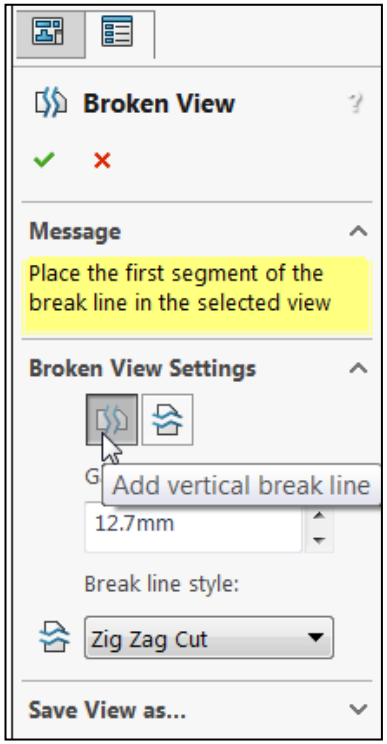


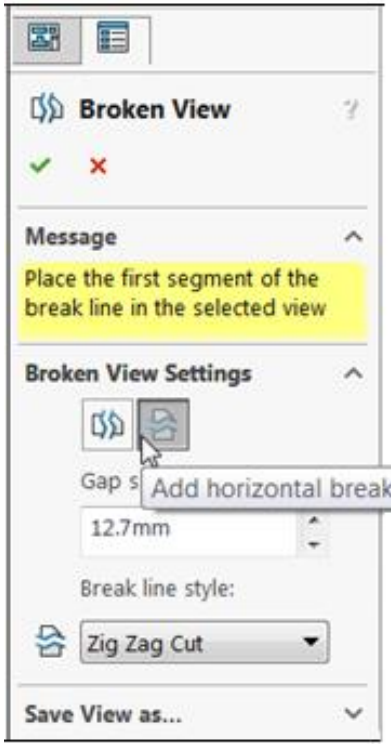




Broken Vertical & Horizontal

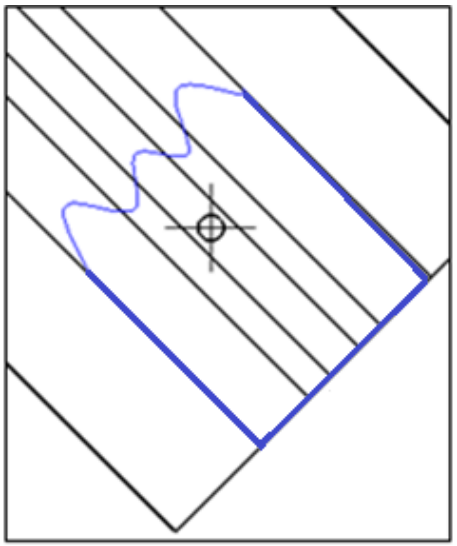




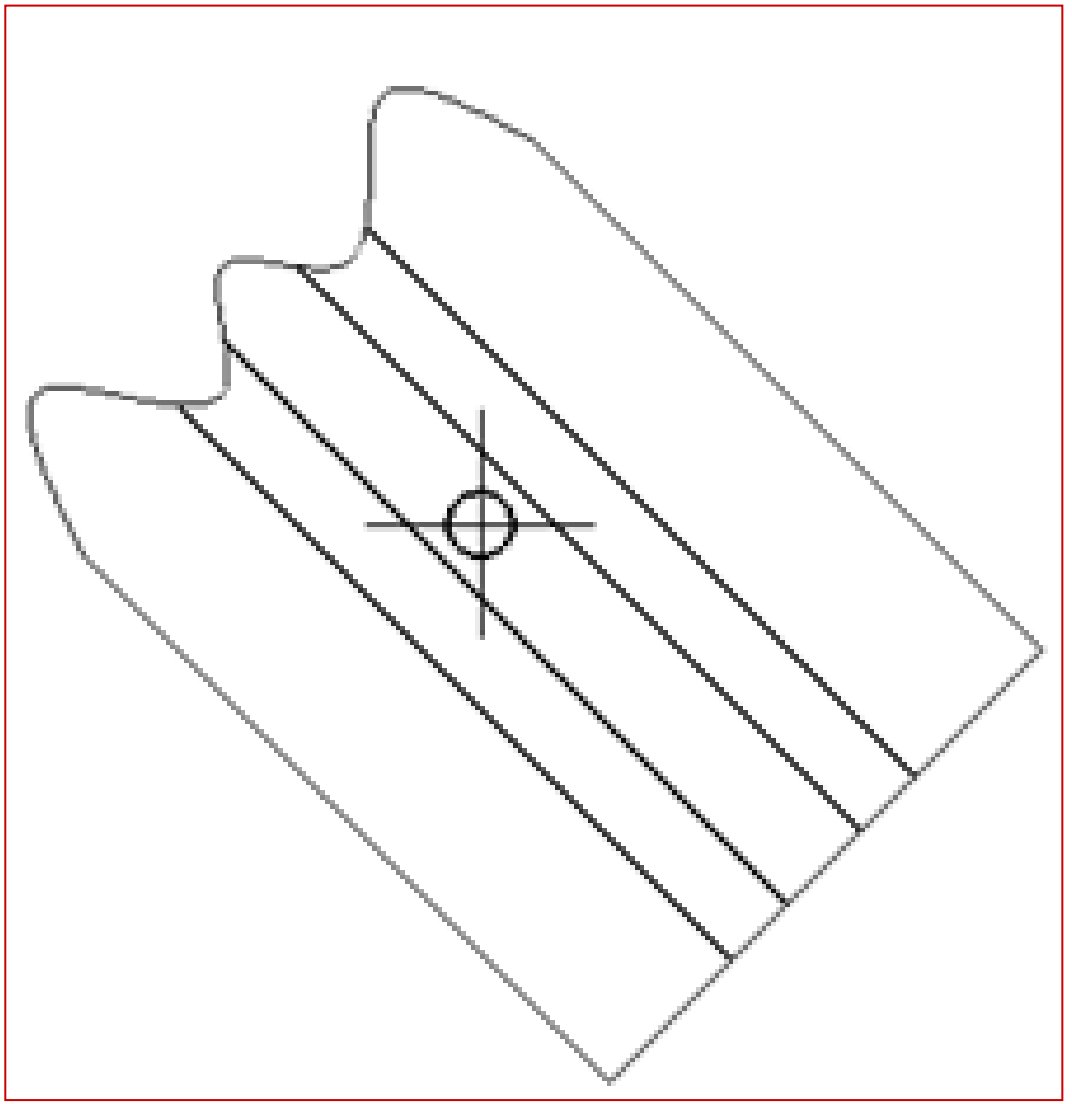


Crop View

Used to focus in on a portion of a drawing view by hiding all but a defined area.

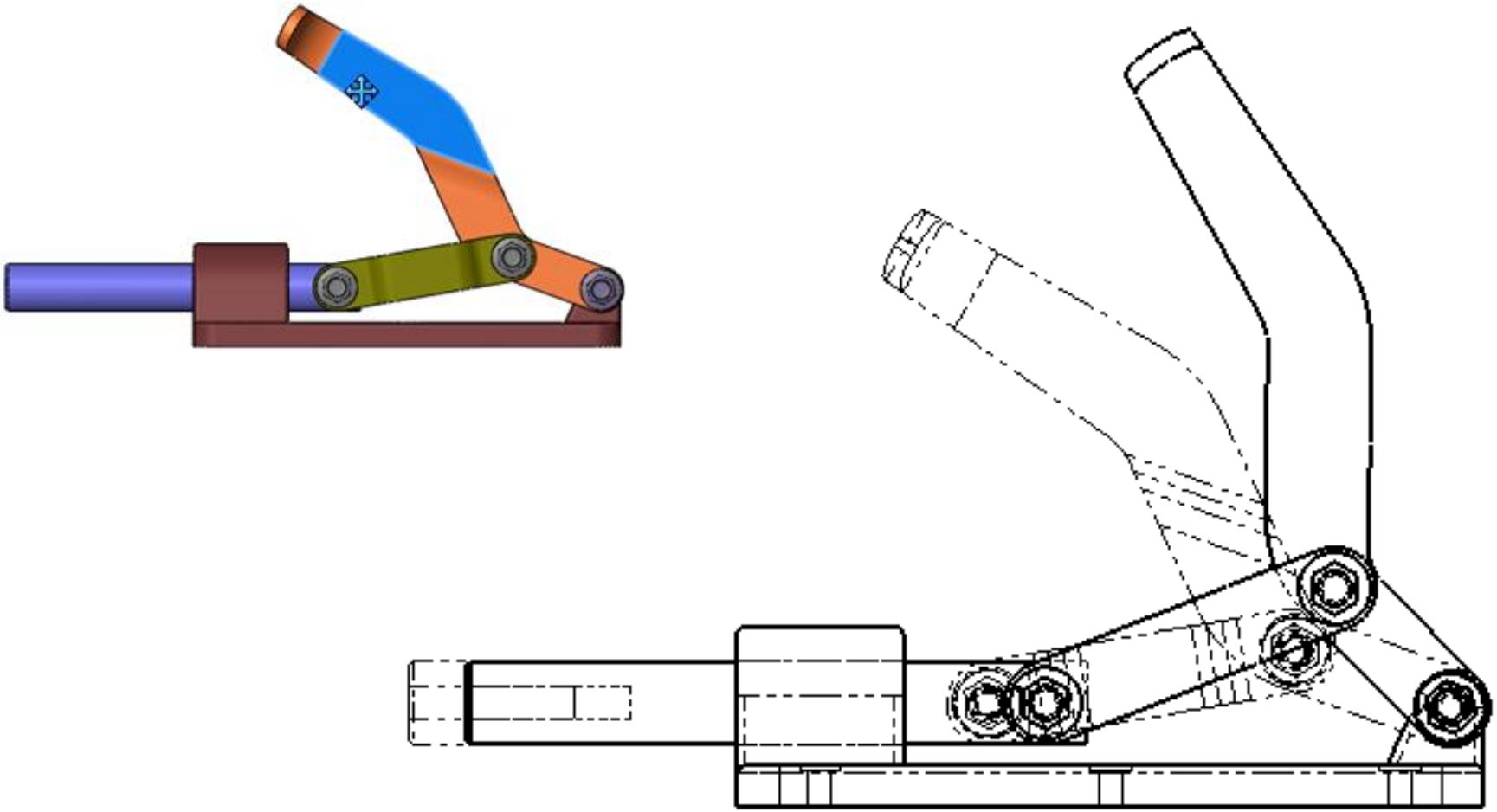


The un-cropped portion is enclosed using a closed contour.



Alternate Position view

Used to indicate the motion of an assembly component by showing it in different positions.

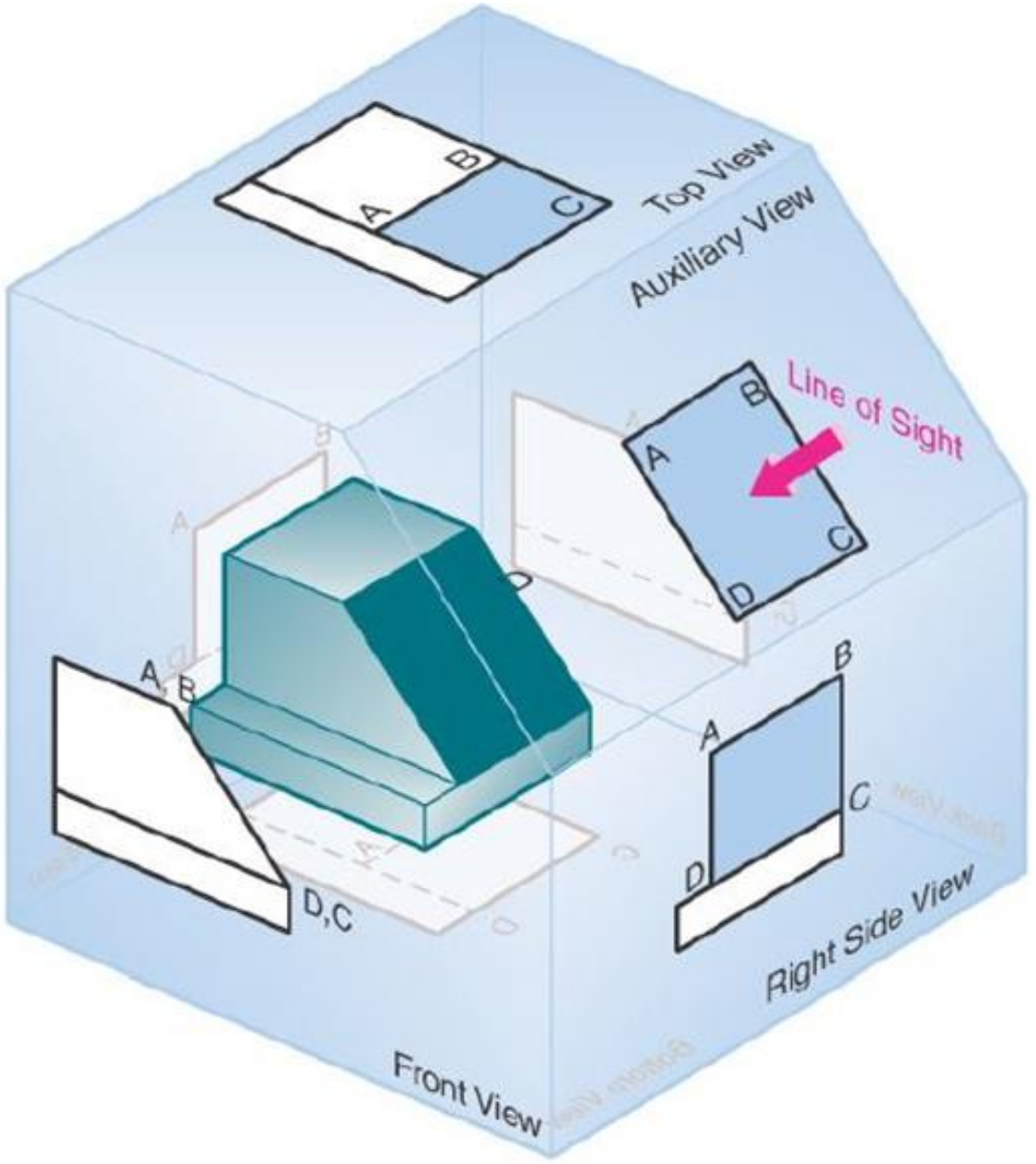


Auxiliary view

is a projected view, just like the six principle views.

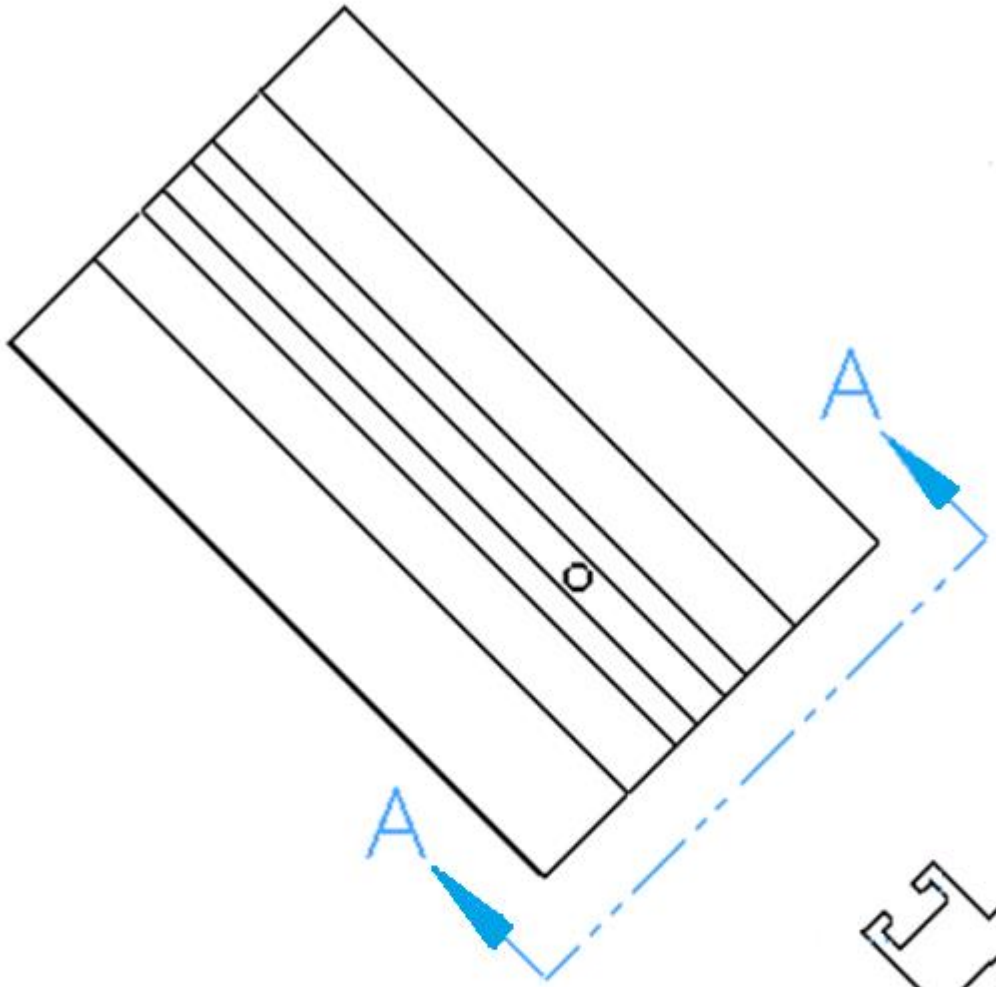
However the plane of projection is not one of the sides of the glass box.

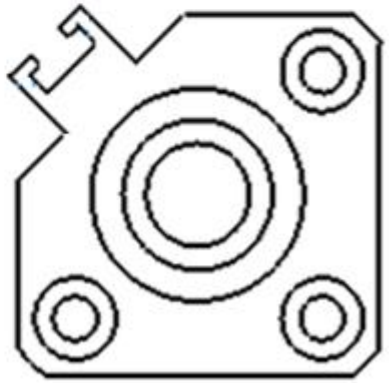
It is an inclined plane.



Think about the plane being unfolded normal to a reference edge in an existing view.

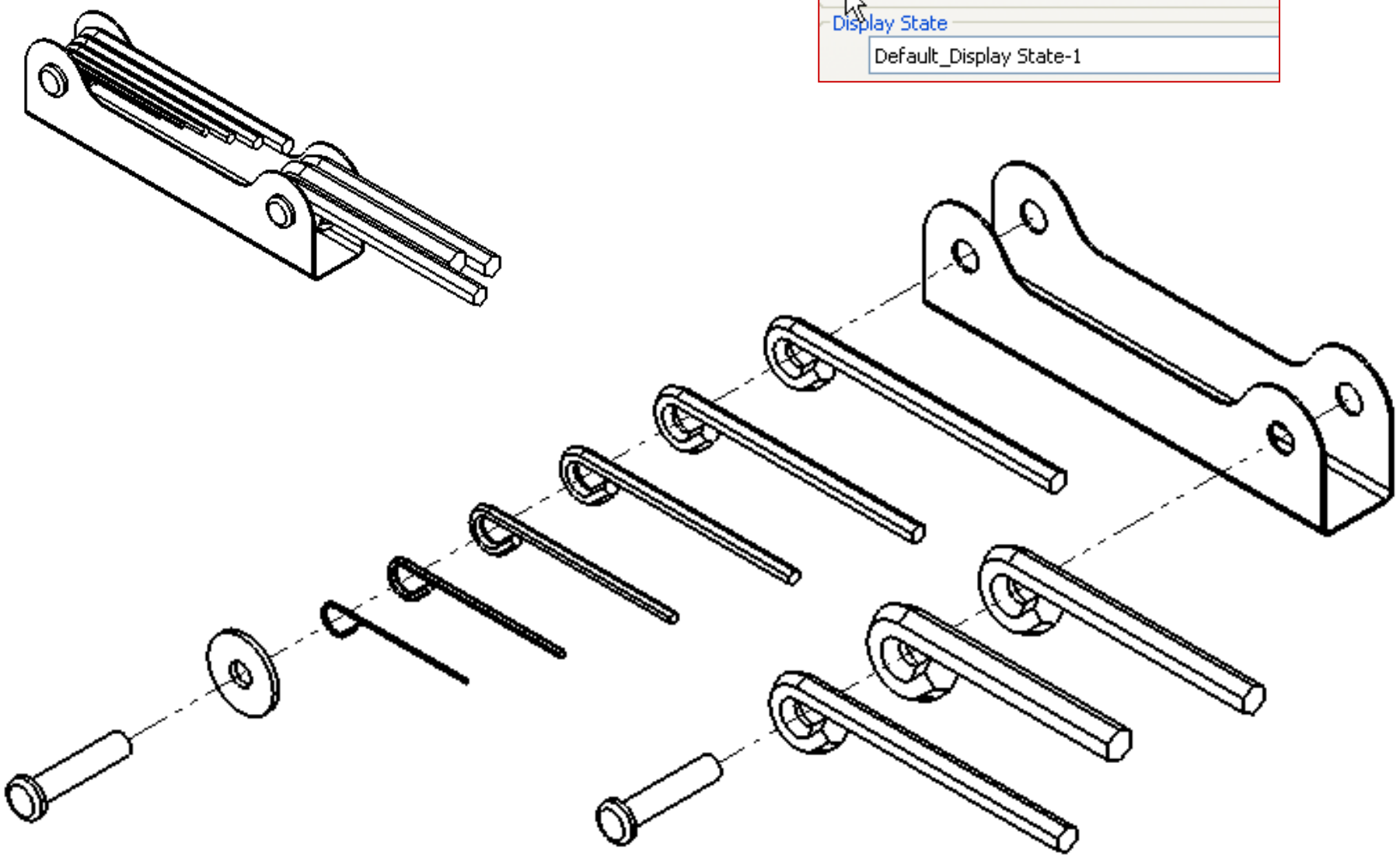
Auxiliary view





VIEW A-A

Exploded view



ANSI Standard Sheet Sizes

Metric (mm)	US Standard	Architectural
A4 210 x 297	A-Size 8.5” x 11”	9” x 12”
A3 297 x 420	B-Size 11” x 17”	12” x 18”
A2 420 x 594	C-Size 17” x 22”	18” x 24”
A1 594 x 841	D-Size 22” x 34”	24” x 36”
A0 841 x 1189	E-Size 34” x 44”	36” x 48”