
Drawing Layout 2

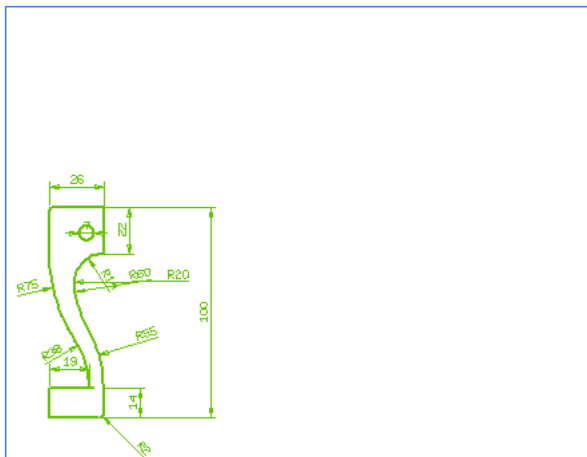
Sometimes drawings mysteriously vanish, just like socks from a dryer. Fortunately, in such cases, you will still have the model. we will show you how to use ThinkDesign to re-create the drawing, insert a title block, and move and edit the dimensions.

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1. Step 1: Setting up the Drawing Properties

First we will define the drawing properties to give us the exact results we want.



Let's start by creating a new drawing.

- Create a **New Drawing**.

We could use **File** → **New...** → **Drawing from Current Model**, but since we are going to place the views manually, we will try a different approach.

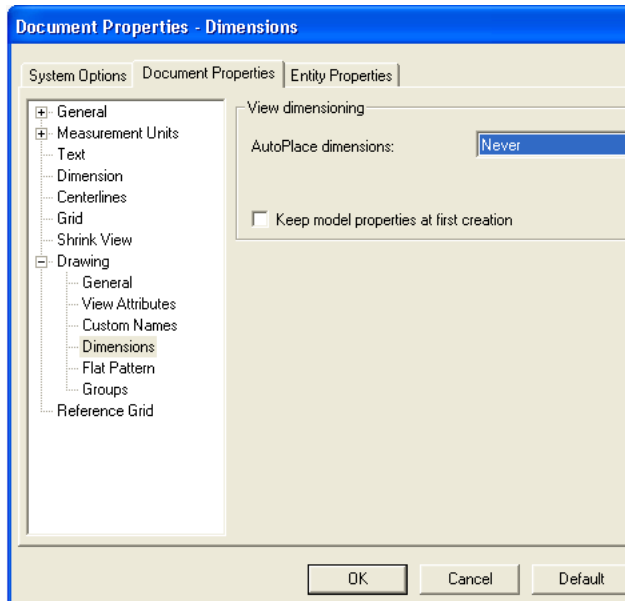
Okay, let's adjust our drawing environment, making sure that the default format, title block and bounding box for our drawing views will load automatically.

- Right click in the Graphics Area.
- Select **Options/Properties**.

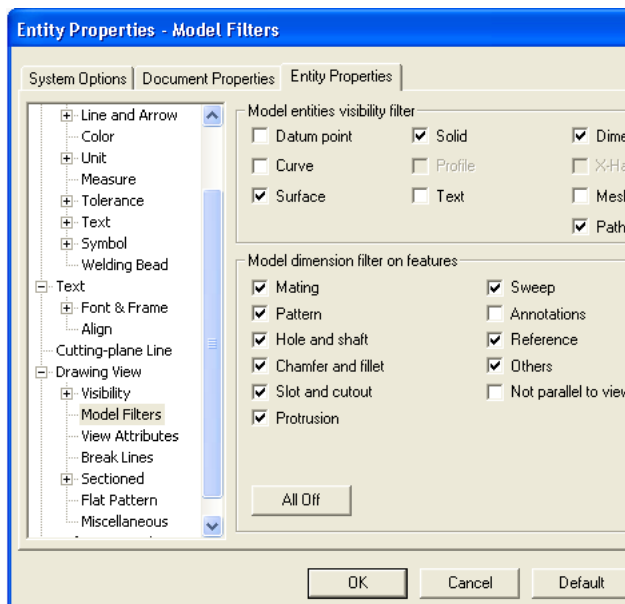
Since we will be editing the dimensions manually, let's turn off the automatic spacing option.

- Under Document properties tab select Drawing. Check the "Enable sheetbox representation" option, if it's not done so and uncheck "Autoload" if it is already checked.

- Select the Document properties. Under Drawing -> Dimensions.
- Select Never for Auto-place dimensions.

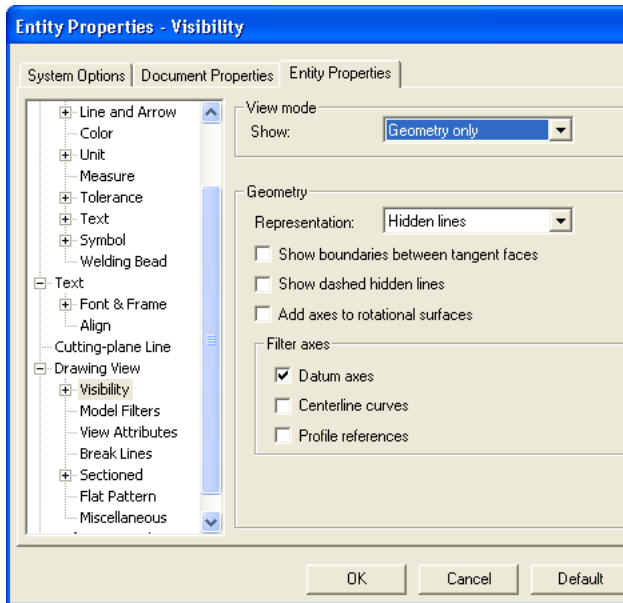


- Go to Entity Properties tab, View -> Model filters.
- Select all the options under Model dimensions filters on features section, except the Not parallel to view option.



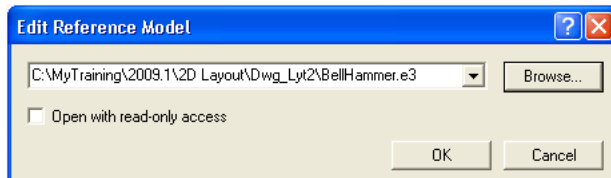
Finally we should remove any unnecessary lines to make it easier to tell which line is which.

- Under the same tab, select View -> Visibility.
- Uncheck Show boundaries between tangent faces.
- Hit OK.



You will need both the Drafting and Drawing toolbars for the following steps. And we are ready to add our first drawing view.

- Select **Insert** → **Drawing View** → **Main** → **Front** from the pull down menu OR select Insert>Drawing View>Main>Front from the context menu.
- Select the BellHammerDrawing.e3 file from the drop down list in the Referenced Model dialog box.
- Hit OK.

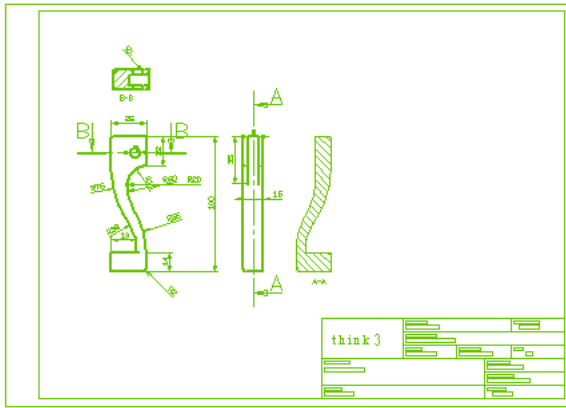


- Click in the lower left corner of the bounding box when the drawing view appears.
- **Fit View** .

Simple, huh? Will adding the additional views be just as easy? Sure!

2. Step 2: Inserting the Drawing Views

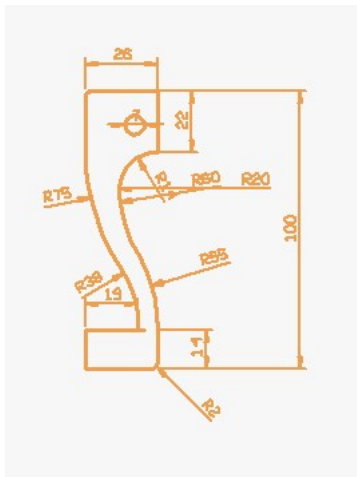
In this task we are not using the default template for our drawing. Instead, we will use the **Projected View** and **Define Section** commands to manually insert the views we need.



First, we will add a right side view using the **Projected View** command.

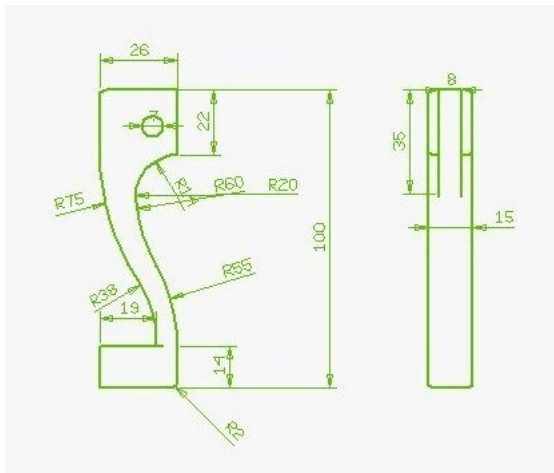
- Select **Insert** → **Drawing View** → **Derived** → **Projected** from the pull down menu OR right click the front view and select Insert > Derived > Projected from the context menu.
- Click to the right when you see a box to the right of the front view.

This first pick defines the direction of the projected view.



- Click again to place the position of the right side view.

You can change the location of the right side view later if you choose to do so.

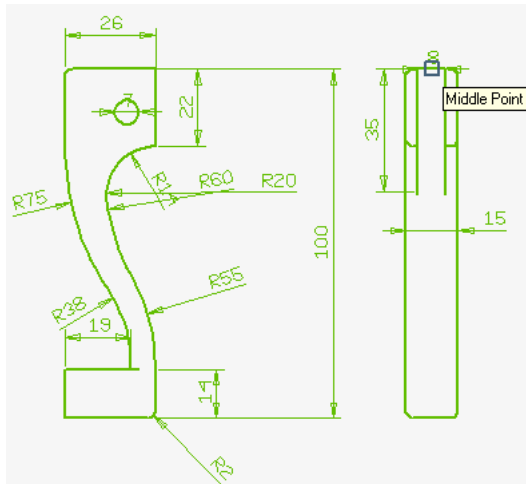


- Hit **Esc** to end.

For a model like this, two main views are enough. Let's use the **Define Section** command to define a cutting plane line for a sectioned view.

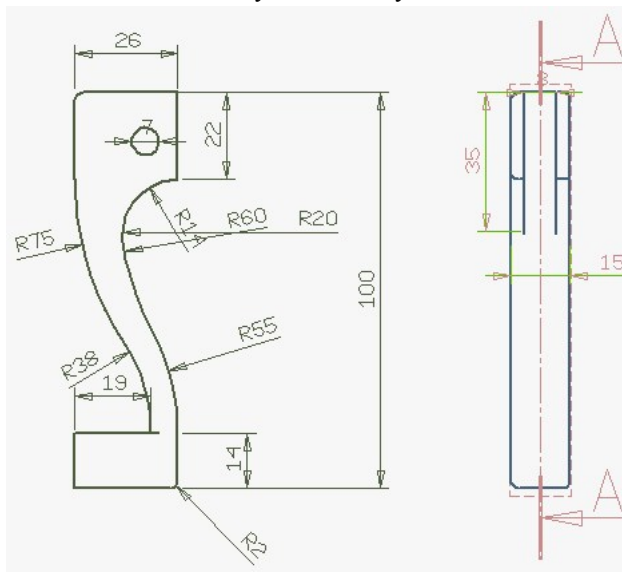
- **Zoom Window** in on the right side view.
- Select **Insert** → **Cutting Plane Lines** → **Define Section**.
- Select the mid-point of the top horizontal line in the right side view.

By clicking on the mid-point for the cutting plane line, we can **Open Group** the view, so that we can edit it.



- Click below the view to place the cutting plane line.

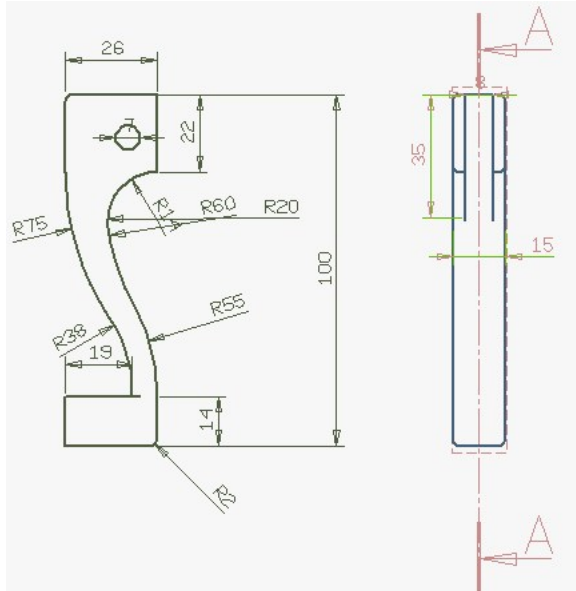
The order in which you click determines the direction of the arrows of the cutting plane line. For vertical cutting plane lines, picking an upper point first and then a lower point, points the arrows to the left. For horizontal cutting plane lines, picking a left point first and then a right one, points the arrows down. If you need to change the direction of the arrows you can always click the section line and select **Invert Section** from the context menu.



Now we can adjust the length of the cutting plane line.

- Right click on the cutting plane line.
- Select **Extend Section**.

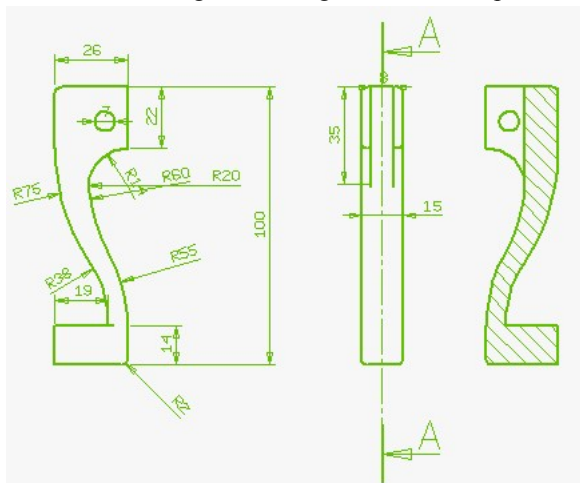
This enables you to position the cutting plane line in which ever position you want to, but along the same direction.



- Place each end of the cutting plane line in the desired place with a click of the mouse.

Now, you can use the cutting plane line you have just inserted to create the actual sectioned view.

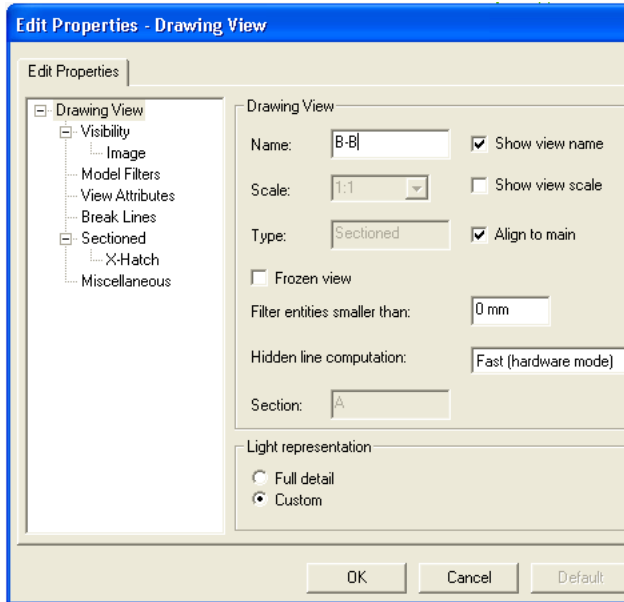
- Right click on the cutting plane line.
- Select **Sectioned View**.
- Click to the right of the right side view to place the sectioned view.



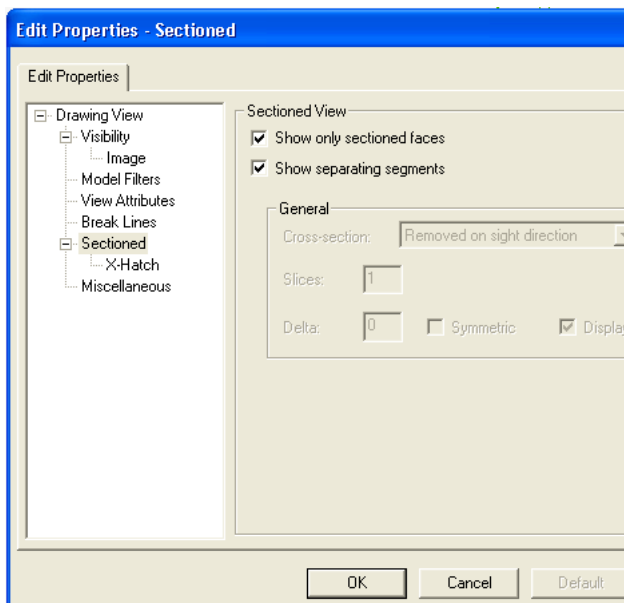
This process actually closes the right side view and makes it unable to edit.

Let's change the properties of the sectioned view.

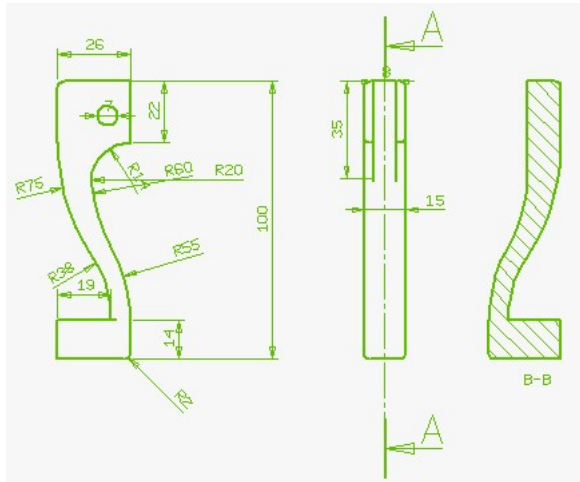
- Right click on the sectioned view.
- Select Properties.
- Select View and Check Show view name.



- Select Sectioned and check Show sectioned faces only.
- Hit OK.

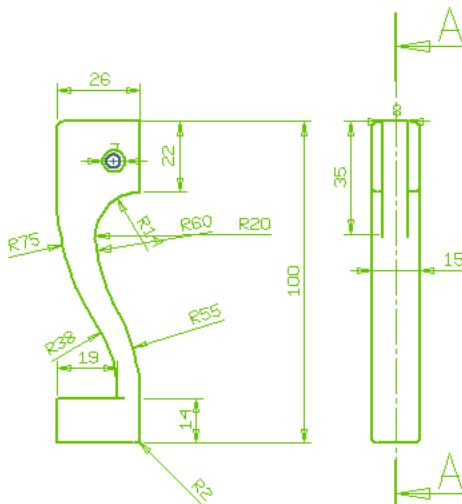


- If you get a warning about the Undo buffer, don't worry about it, just hit OK.

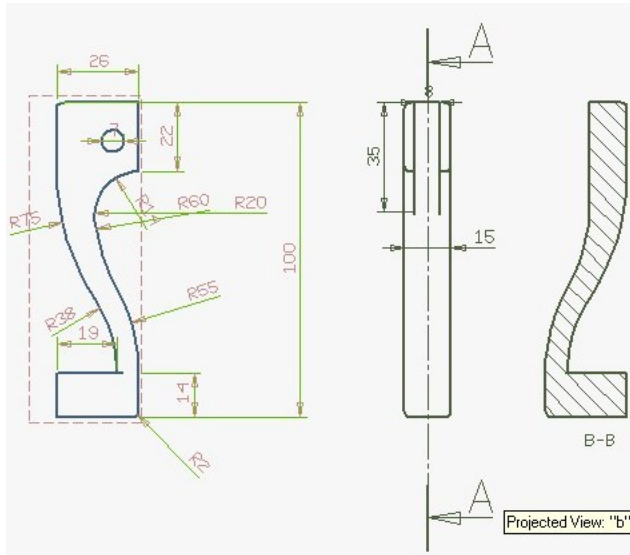


Not bad huh? Well I hope so, because you're about to do it all over again!

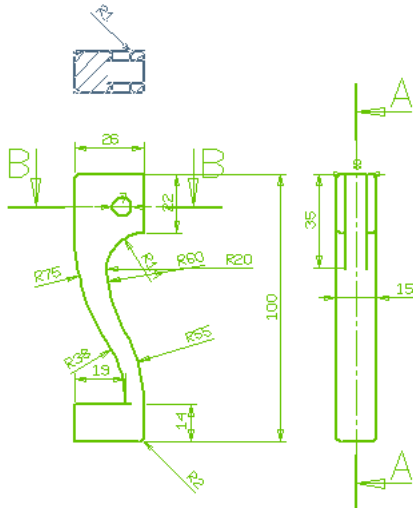
- **Zoom Window** in on the front view.
- Select **Define Section**.
- Click the center of the hole in the front view.



- Click to the right of the view to place the cutting plane line.
- Select **Extend Section** to adjust the length of the cutting plane line as shown below.



- Create the **Sectioned View**.



- Right click on the small sectioned view we just created.
- Select View Properties....
- Select View and check Show view name.
- Uncheck Align to main.

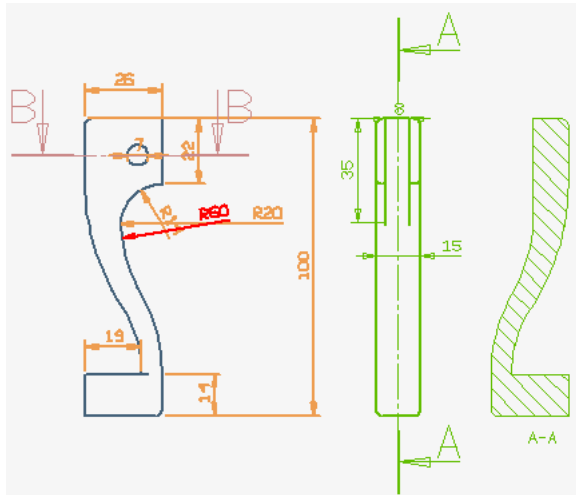
Having the Align to main option unchecked, enables you to move the sectioned view anywhere in the drawing, as it will not be aligned with the front view from which it was derived.

- Hit OK.

Not a bad way to earn a living, huh? Now, we make a run for the format.

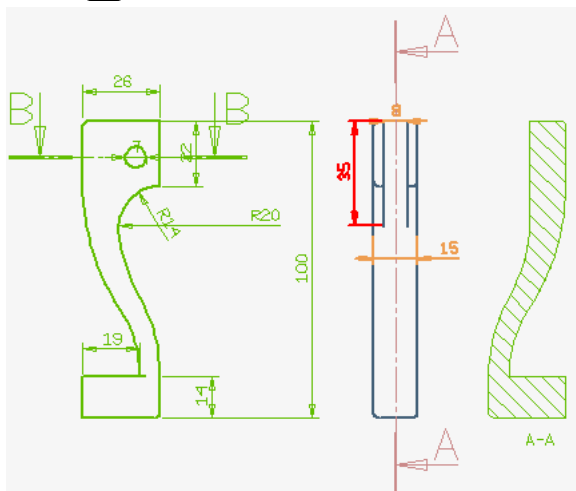
3. Step 3: Running for the Border

Now that we have our views, we can add a border and reposition our current views to fit inside it.

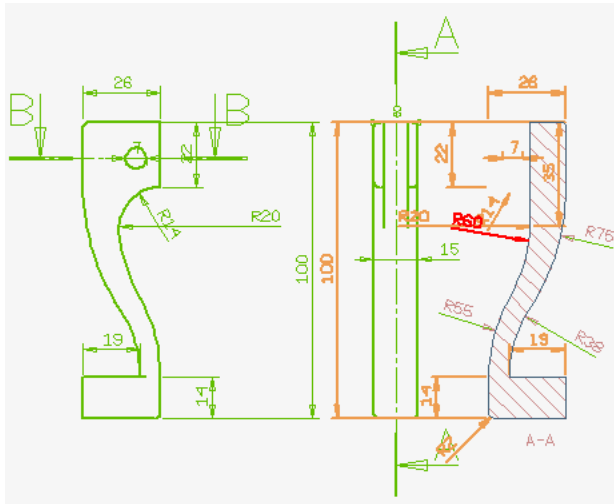


That was pretty straightforward; let's move on to the other views.

- Right click the right side view.
- Select **Hide Dimensions Axes Edges**.
- Click on the 35 dimension.
- Hit **[Esc]**.

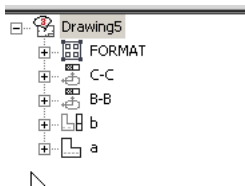


- Right click the large sectioned view.
- Select **Unhide Dimensions Axes Edges**.
- Select four of the same radius dimensions that we hid in the front view.
- Hit **[Esc]**.



Can you believe we forgot about two other dimensions in the front view that are needed to be in the large sectioned view? Instead of using the Hide\Unhide commands that we just used, let's use the **Change View** command to transfer the dimensions from the front view to the large sectioned view.

- Right click on the front view.
- Select **Open Group** OR in the Drawing structure click on the + sign, next to the view a to open the front view.

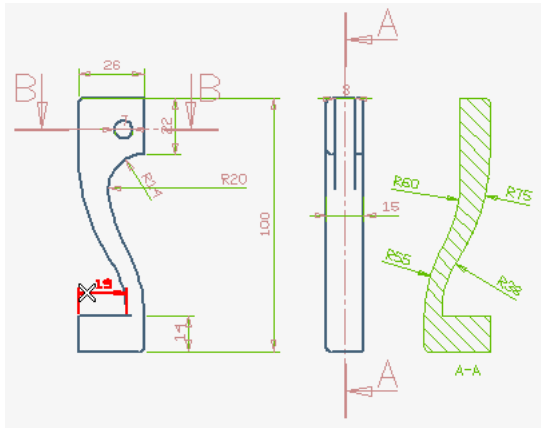


In the Drawing structure each view is associated by a letter according to the order in which it was created (in this example a for front, b for right side, etc.).

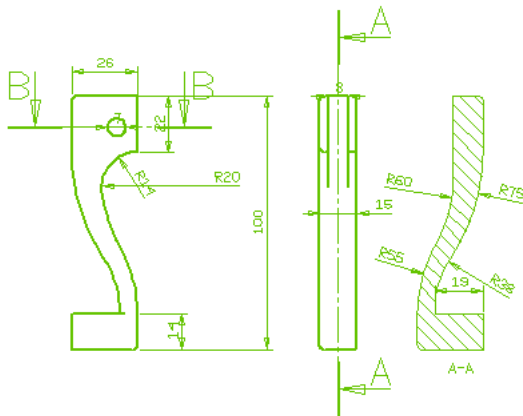
- Repeat the above step for the right side view.

You will notice that there is an option in the context menu called **Set Current Group**. This allows you to link entities to a view (like adding lines and dimensions) but can only be used with one view at a time. **Open Group**, on the other hand, allows you to access individual entities in the view, and it can be used for multiple views at once. In this example it is the best option to use.

- Select **Change View** from the Drawing toolbar OR select **Modify** → **Dimension** → **Change View** from the pull down menu.
- In the front view, click on the highlighted dimension shown below.



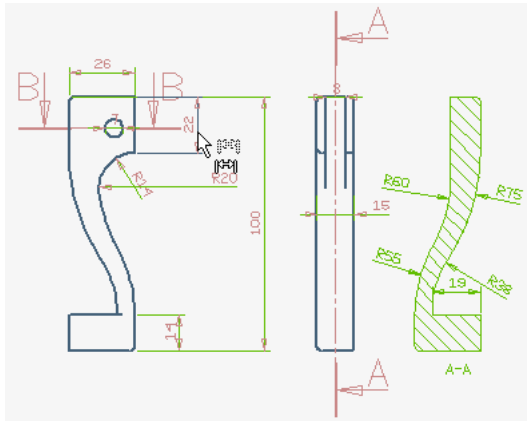
- Click on any part of the large sectioned view to move the dimension to the view.
- Hit the **Esc** key to end the command.



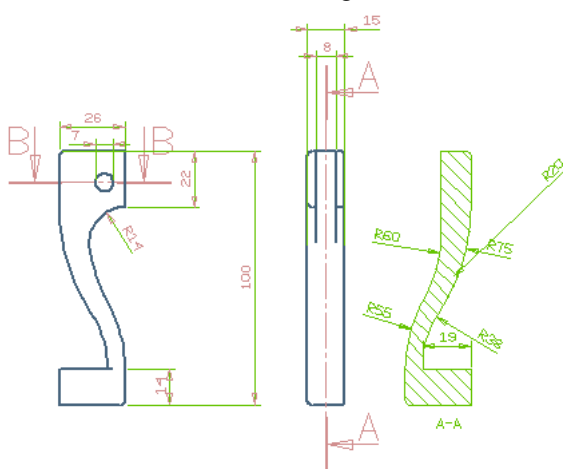
Let's use the **Move/Modify Dimension** command to neaten up the drawing a bit, by moving some of the dimensions.

- Select **Modify** → **Dimension** → **Move/Modify** from the pull down menu.
- Click the 22 dimension.
- Drag it to the right a little bit.

Our goal is to place these dimensions out of the way of any other dimension or the cutting plane line. We could use the grid and snap function, but we are not looking for accuracy; in this case as long as they're out of the way and look good, they will be fine.



The **Move/Modify Dimension** command is still active so let's move the other dimensions in the front and right side to make it look like the image below. We will worry about the dimensions in the large sectioned view later.

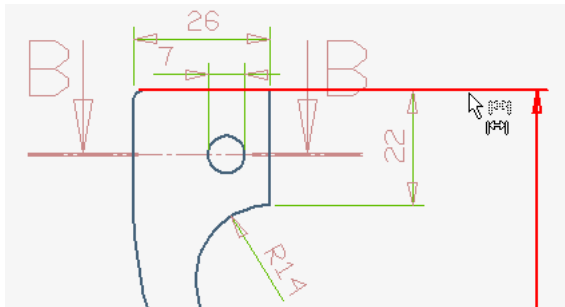


Looking good! Let's really fine tune it by making sure the dimensions don't overlap the geometry of our drawing.

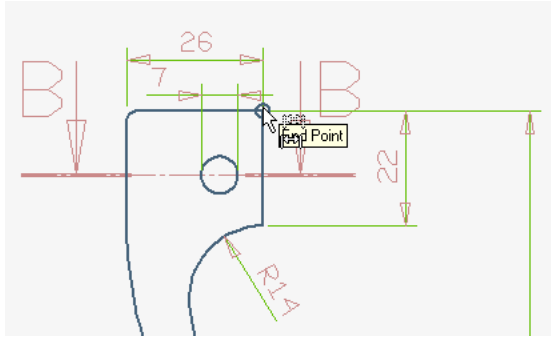
- **Zoom Window** closer to the top of the front view.
- Click the Edit button in the parameter area.

The **Move/Modify Dimension** command has to be active to see the Edit button; if it isn't, once again start **Modify** → **Dimension** → **Move/Modify** command.

- Click the 100 dimension at the top witness line.



- Click on the upper right corner so that it doesn't overlap with the model's geometry.

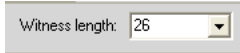


Hmm, now it's placed where we intended it to be. But there's no gap from the corner to the witness line. So, let's change that.

- Click the 100 dimension on the witness line that we just changed.

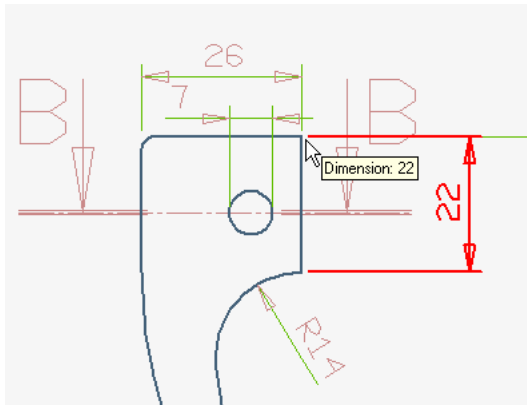
The witness length in the parameter area is what we need to change.

- Double click the number in the Witness length drop down.

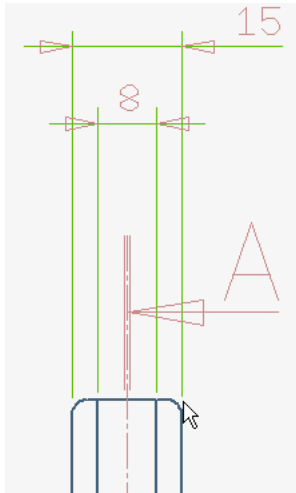


- Add 1 to the current number i.e. change it from a 26 to 27.

- Hit .



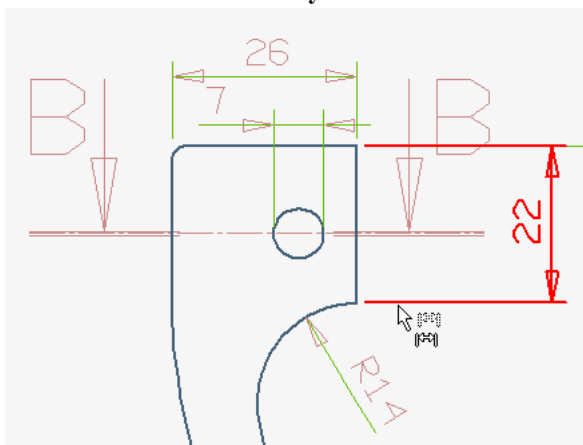
- Do the same for both the 15 dimension witness lines in the right side view.



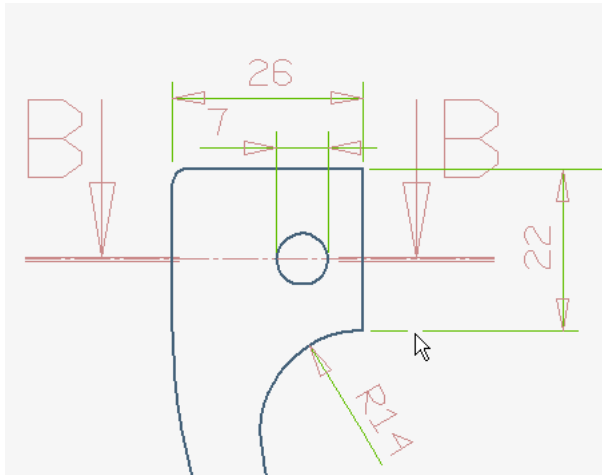
As easy as pie! But the fine tuning doesn't have to stop yet.

- **Pan/Zoom/Rotate** back to the top of the front view again.
- Select the bottom witness line on the 22 dimension.

Remember the **Move/Modify Dimension** command is still active.

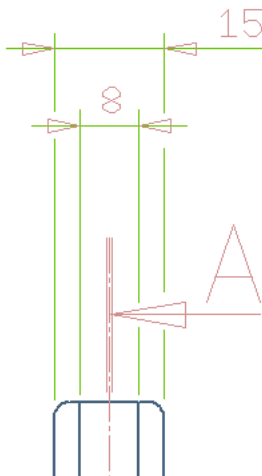


- Click the Add Break button in the parameter area.
- Click a little to the left of the cutting plane line arrow.
- Click a little to the right of the cutting plane line arrow.



Not bad! Can you do the same for the 15 and 8 dimensions in the right side view?

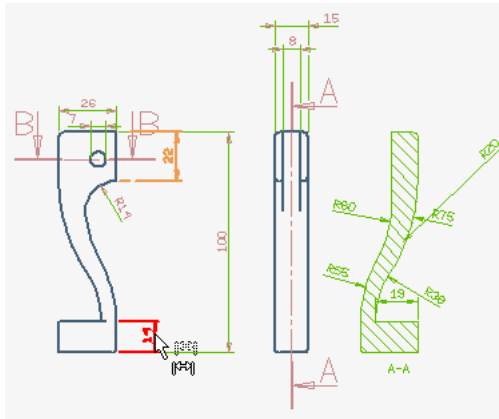
- Make it look like the image below.
- Hit **Esc** to end the command.



Perfect! All those changes and we stayed in only one command for the whole time! But to be really picky, wouldn't the 22 and 14 dimensions look better, if they are aligned to each other?

- **Pan/Zoom/Rotate** back so you can see the three larger views.
- Select **Align Dimension** from the drafting toolbar.
- Click the 22 dimension for the reference entity.
- Click the 14 dimension to be aligned.

After selecting a dimension, any subsequent dimension you choose aligns with the first dimension.

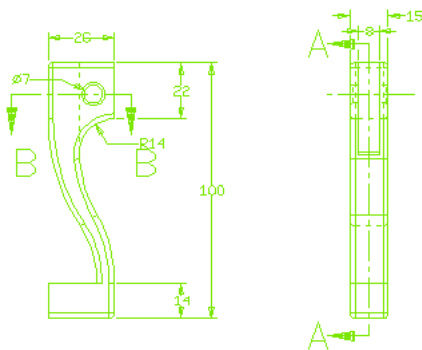


- Right click in the Graphics Area.
- Select End of Selection.
- Hit **[Esc]** to end the command.
- Right click on any of the geometry lines in the front view.
- Select **Close Group**.
- Repeat for the right side view.

Your mom would be proud of how neat you have become! In the next step we will clean up the sectioned views to make your boss proud too.

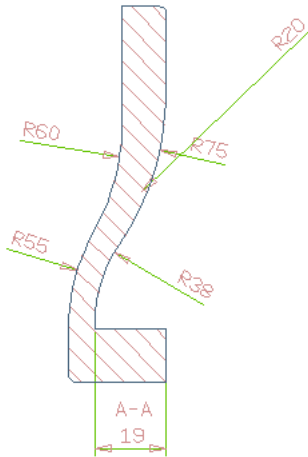
5. Step 5: Smartening Up Your Dimensions

The two main views have been cleaned up, but there are still two sectioned views to think about. We will use the **Move/Modify Dimension** and **Smart Dimension** commands to make the needed changes.

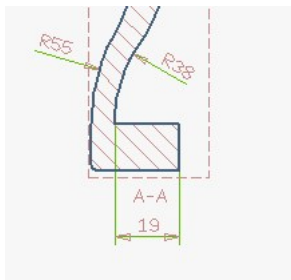


First we will take care of the large sectioned view.

- Right click on the view A-A.
- Select **Open Group**.
- Click and drag to move the dimensions to match those shown below.

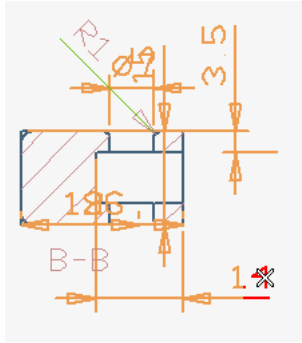


- Select the **Move/Modify Dimension** command to edit the 19 dimension right witness line.
- Move the section name to a more Prominent position in the view.
- Hit the **Esc** key to end the command.
- Right click on the sectioned view.
- Select **Close Group**.
- **Fit View** .

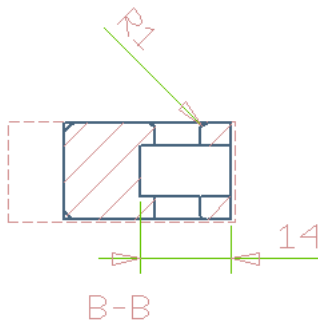


The sectioned view looks a little bare so let's add one more dimension. We could just add a smart dimension, but it's so much easier to use a dimension that is already referenced from the 3D model.

- **Zoom Window** in on the small sectioned view.
- Right click the small sectioned view.
- Select **Unhide Dimensions Axes Edges**.
- Select the horizontal 14 dimension.

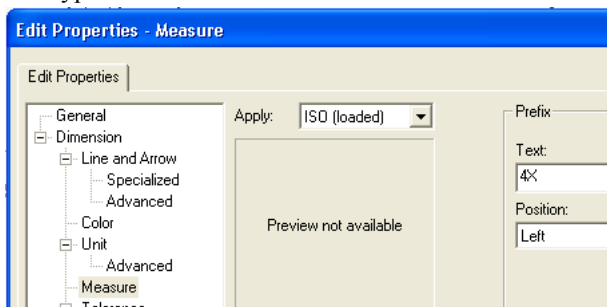


- Hit **Esc**.
- Right click on the sectioned view.
- Select **Set Current Group**.
- Use the **Move/Modify Dimension** command to edit the 14 dimension left witness line.
- Hit **Esc**.
- Move the section name to a more centered position in the view.

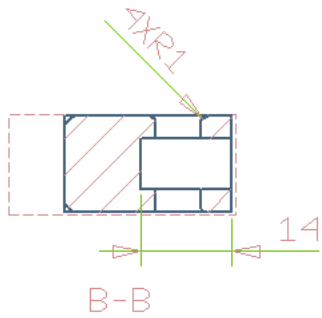


Now we will work on the dimension format, adding a prefix 4X to the R1 fillet radius dimension.

- Right click the R1 dimension.
- Select Properties.
- Select Measure under Entity Properties.
- Type in 4X in the Text box for Prefix.

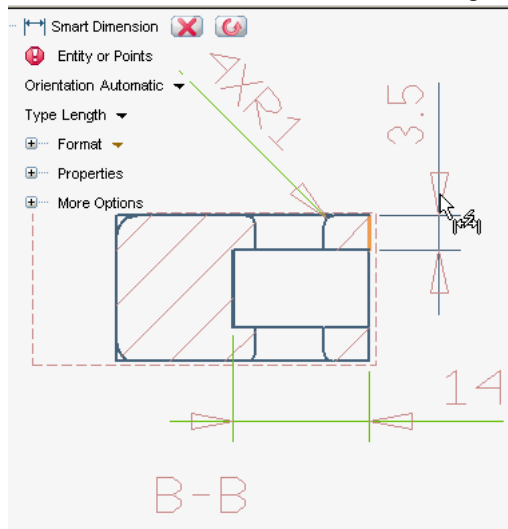


- Hit OK.

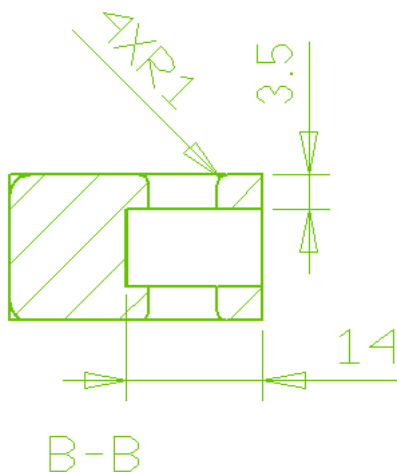


Although we did o't do it earlier, we can add **Smart Dimension** if you choose.

- Select **Smart Dimension** from the drafting toolbar.
- Make the selection as shown in the image below.

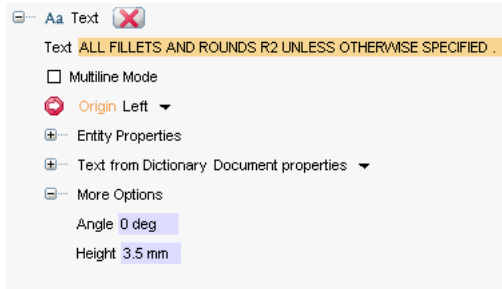


- Place the dimension to the right.
- Hit the **Esc** key to end the command.
- Right click the red dashed bounding box.
- Select **Top Level Group**.

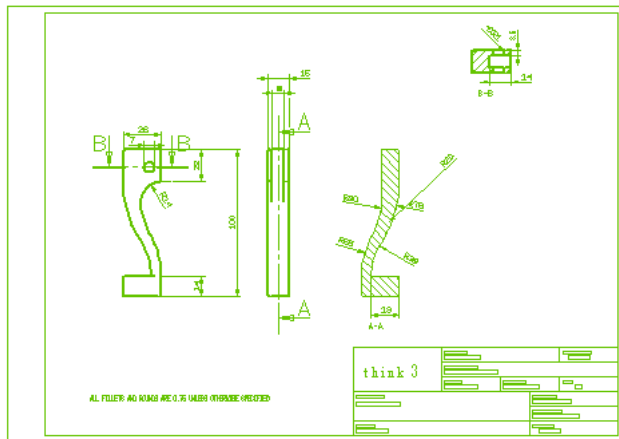


Let's add a little note for future reference.

- **Fit View** .
- Start the **Insert Text** command.
- **ALL FILLETS AND ROUNDS R2 UNLESS OTHERWISE SPECIFIED.**

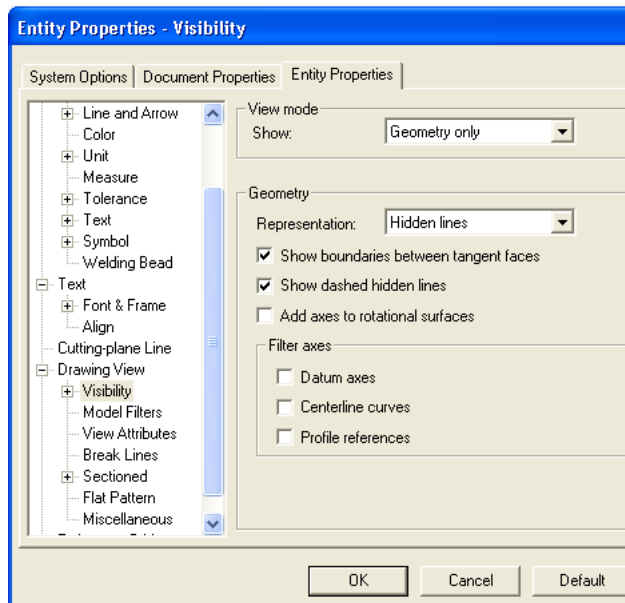


- Hit **Tab** so you can see the text with each movement of the mouse.
- Place the drafting text in the lower left corner of the border.
- Hit **Esc** to end the command.



Since we are finished with our dimensional edits, we can add more detail to our views with simple check boxes.

- Right click the drawing workspace.
- Select **Options/Properties**.
- Select the Entity properties tab. Click on the visibility category under View.
- Check the Show boundaries between tangent faces.
- Check Show dashed hidden lines box.
- Hit OK.



- If you get a warning about the Undo buffer, don't worry about it, just hit OK.
- Do the same for the right side view.

Now that's a drawing! Way to go!

Related Topics

- Drawing Layout 1