Drawing Layout 1

This task shows you how to repair the given cotton gin handle and document the part in a detailed drawing, using ThinkDesign.

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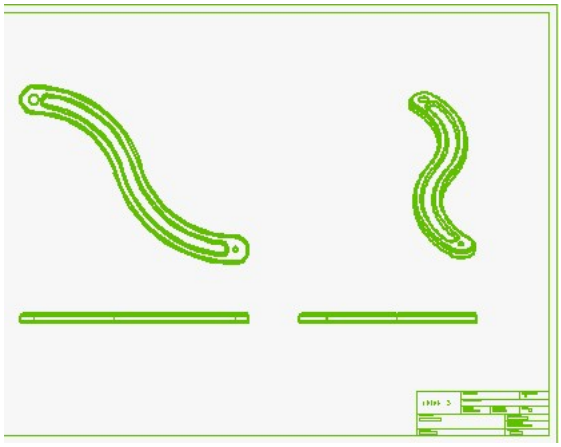
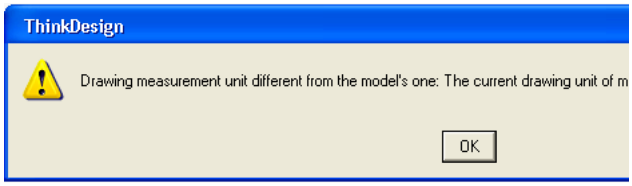
1. Step 1: Creating drawing from a model

We already have the model, but something is wrong with it. To fix it, we shall start a new drawing based on this model; this will help us modify the drawing details as needed.



First, we shall start a new drawing, based on the current model. It is really not as hard as it sounds.

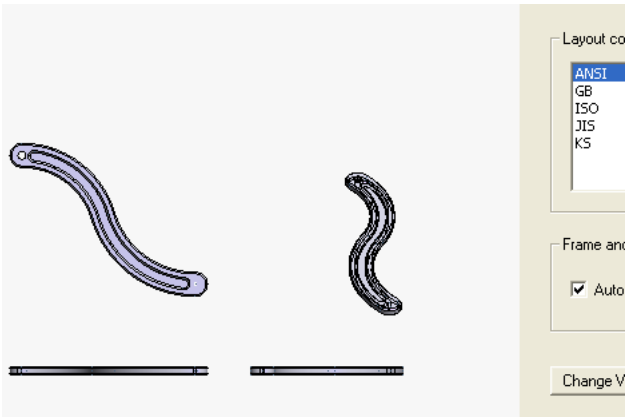
- From the pull down menu select **File**➪**New...**➪**Drawing from Current Model**OR select the drop down arrow next to New File and select **New Drawing From Current Model**.
- If you had used File Open -> Options"Convert to multi-units", while opening the Drawing, you will get a warning message. Click OK to the alert message, which describes the difference in units.



The **New Drawing From Current Model** command opens a Drawing template dialog box. The left side of the dialog box shows a preview of the drawing views, while the right side displays the template controls.

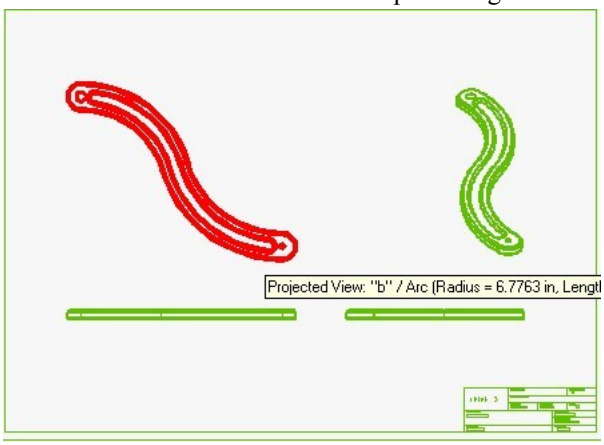
- Select the ANSI template from the Templates list.

- Select ☑ Auto Load.
- Hit OK to accept the template.



This is it. We created a 2D drawing from the cotton gin handle model file. Notice the title bar; it indicates a new drawing file has been created called Drawing1. ThinkDesign also distinguishes between a model and a drawing file by the icon that appears along the main file menu, as shown below.

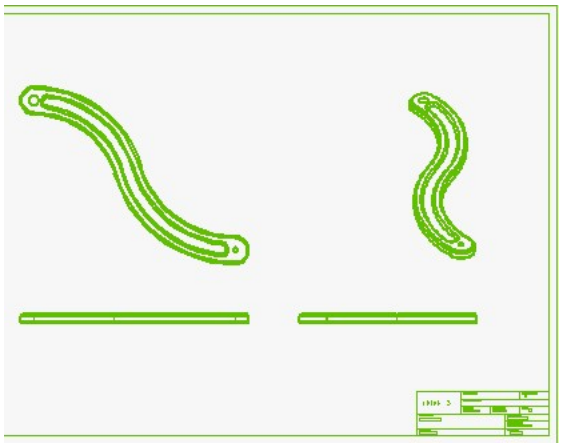
- Now move the cursor over the top drawing view.



The Tooltip shows the name of the view according to how it was created, and the properties of the entity. In this standard top view, it shows the Projected View named "b" and the entity we were over.

- Similarly, move the mouse over other views and notice their names.

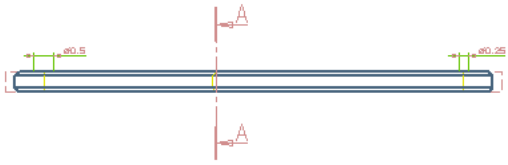
Note the view names: Main View "d" is the isometric view, Projected View "c" is the right side view and Main View "a" is the front view.



Now we can start detailing the drawing file.

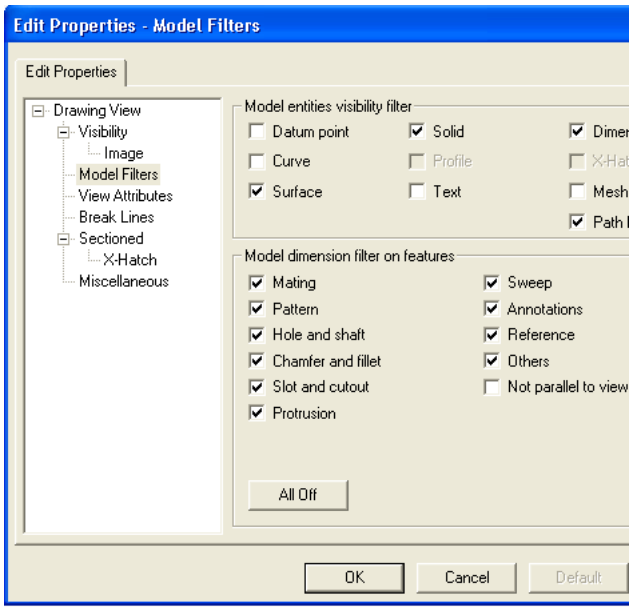
2. Step 2: Adding the Drawing Detail

There is not much space left for more views in this drawing file. So, let's move these views to free up some space and add a sectioned view off of the Front\Main view.



As we are relying on the system generated dimensions for this drawing let's display them.

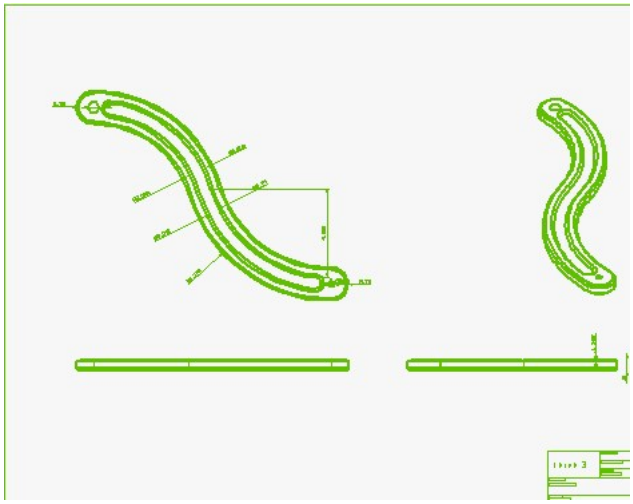
- Right click on the Top view and select **Properties**.
- Go to View -> Model filters
- Select the options as shown in the image below.



- Select OK.

But where are my dimensions? To get them, One more thing is needed.

- Click the **Regenerate View** button in the toolbar. The cursor will change into an X.
- Click on the Top View.
- Hit Esc.

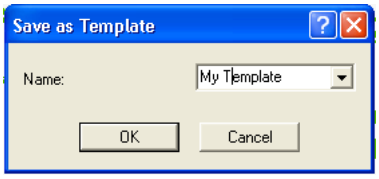


- Repeat the same steps as above for the bottom two views.

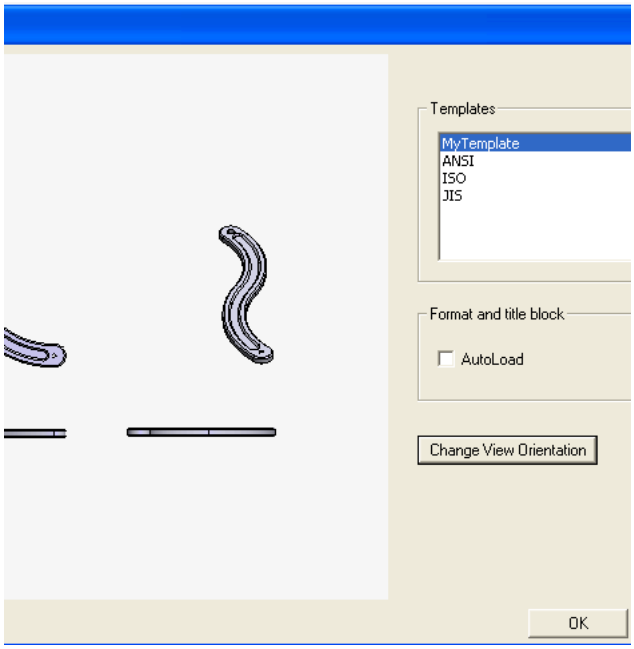
We can save these settings for future use, so that next time we create a drawing, the dimensions will appear automatically.

Start the **File**⇨**Template**⇨**Save As**command, push the “new” button and in the Current template field enter the name as “MyTemplate”.

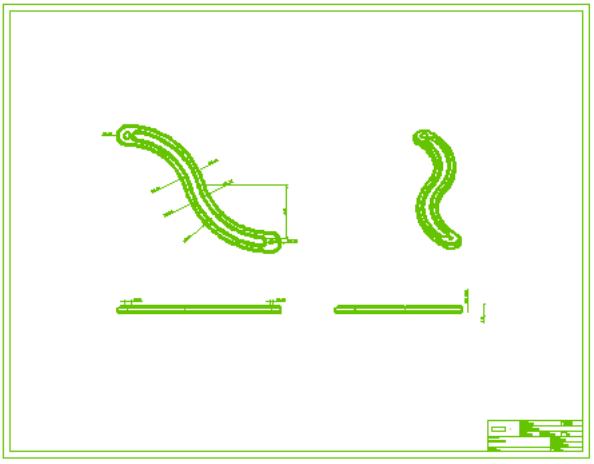
The File>> Template>> Save as command helps you to save the current arrangement of the views in the drawing to a drawing template file, so that you can use the same arrangement to create other drawings.



Drawing template files have the file extension .LYA. The predefined drawing templates are saved in the thinkdesign\files\templates directory of your installation folder. Custom templates are stored in the user directory which depends on your operating system.



Now try to repeat the first step, starting from the ginhandle model, but in the template list select MyTemplate template. Now you will see the new drawing along with the dimensions.



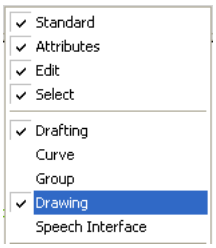
We need to show the Drawing toolbar, which provides a quick way to access some of the commands, that we need for this task. There are two ways of getting this toolbar:

You can use the pull down menu to display the toolbars.

- Select **Tools**➪**Customize**.
- Click on the Toolbars tab.
- Select the ☑ Drawing toolbar.
- Close the dialog.

OR, use the context menu.

- Right click on the Parameter area.
- Select Drawing from the context menu to turn on the toolbar.



After getting the Drawing toolbar in place, first move the four drawing views to the right to make some room for the two more views that we need to add.

- Click and drag the Main View: "a" a little to the right.

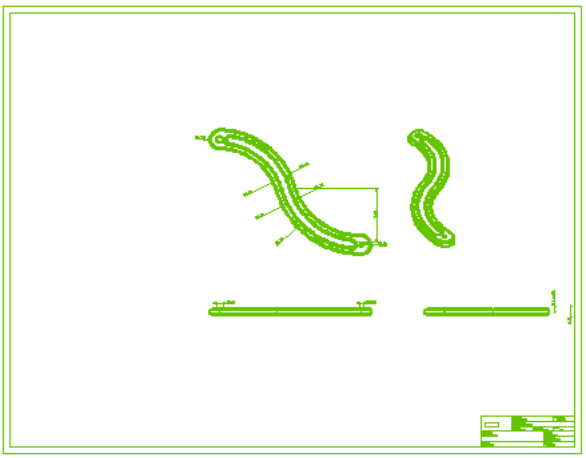
Notice that the top and right views moved with the Main View.

There is also a **Move View** command, which we can use to move a drawing view

- Start the **Move View** command.
- Select the Main View: "a".
- Move the view to the right and click again to place the view.

Using one of these methods, move all the views to the right, as shown below, to free up some space on the left hand side of the drawing.

Notice that you can only change the distance of the Projected views from the Main view. This keeps it aligned with the Main view.

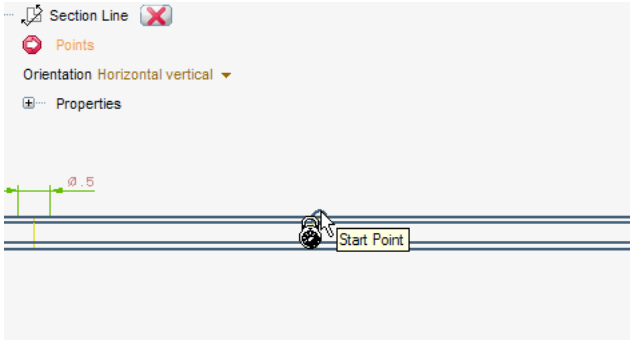


With all that moving out of the way, now we can create the sectioned view using **Define Section**.

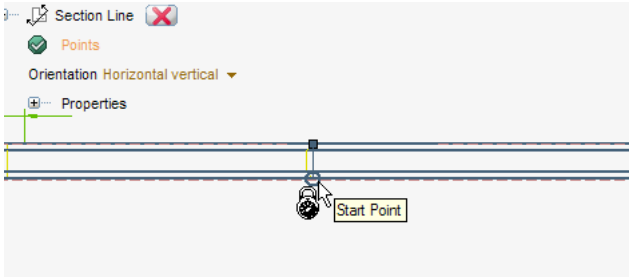
- **Zoom Window** into the Main View: "a".
- Select **Insert**➪**Cutting Plane Lines**➪**Define Section**from the pull down menu.

The Orientation option in the Selection list determines the cutting plane orientation. Set the orientation to Horizontal-Vertical.

- Snap to the Start Point near the middle of the top edge in the front view.



- Snap to the End Point directly under the first point on the lower edge of the view to define the line.



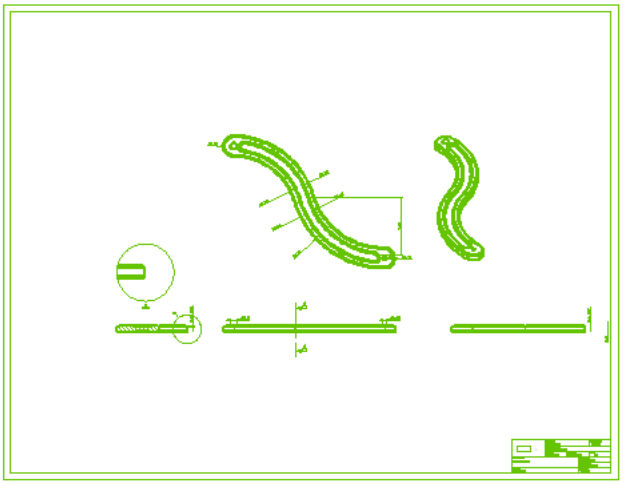
- Click OK.

Did you notice how the colors of the view change and the border appears!!

In the next step we shall create the section view.

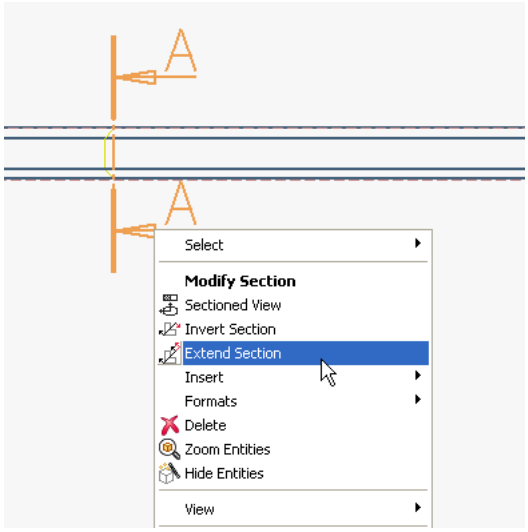
3. Step 3: Adding Sectioned & Detail Views

We have the views, we have the cutting plane line, now it's time for sectioned and detail views. We will now add these views with the **Sectioned View** and **Detail View** commands to finish up the view creation.

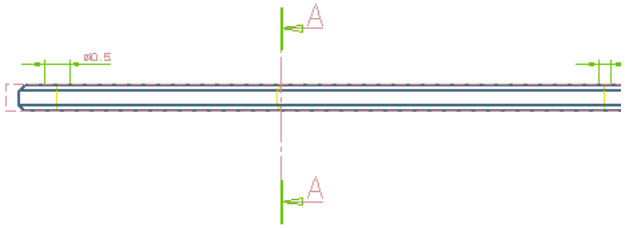


Does the cutting plane line look a little too long? Never mind, it can easily be adjusted to suit our needs.

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

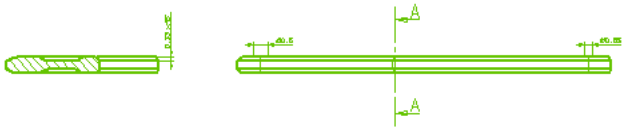


- Click to place the top and bottom ends of the cutting plane line a little closer to the view.



That is a little cleaner. Now it's time for our **Sectioned View**.

- **Zoom Out** a little so you can place the new view properly.
- Right click on the cutting plane line again.
- Select **Sectioned View** from the context menu.
- Move the cursor and click to place the view to the left of the Main View.



Once you click to place the new view, the Main View returns to the default closed state, making it no longer "Writable".

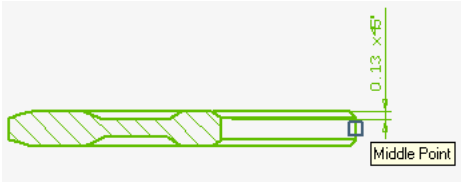
- Move the mouse over the new view.
- Notice the name of this view as Sectioned View: "A-A".

Any view can be renamed by right clicking on the view and selecting View Properties... from the context menu.

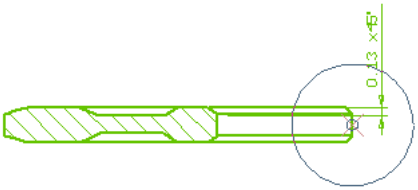
Now we will insert the **Detail View**.

- **Zoom Window** in to the sectioned view.

- Select **Insert**➪**Drawing View**➪**Derived**➪**Detail View**from the pull down menu.
- Set the Bound: to Circle in the Parameter area to define a circular boundary for the detail view.
- Snap to the Middle Point of the right vertical edge of the sectioned view to set the reference point for the detail view.



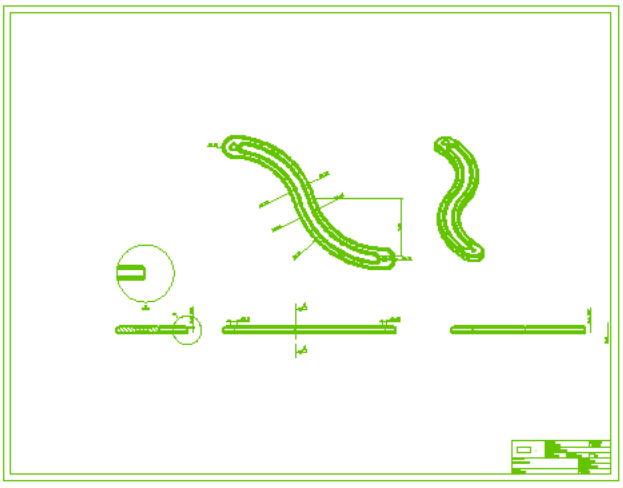
- Select the same point to define the center of the boundary circle.
- Move the mouse in any direction and click again to set the radius of the circle.



- Click above the sectioned view to place the detailed view.

Don't worry if the detailed view overlaps another view. You can move any of the views at any time.

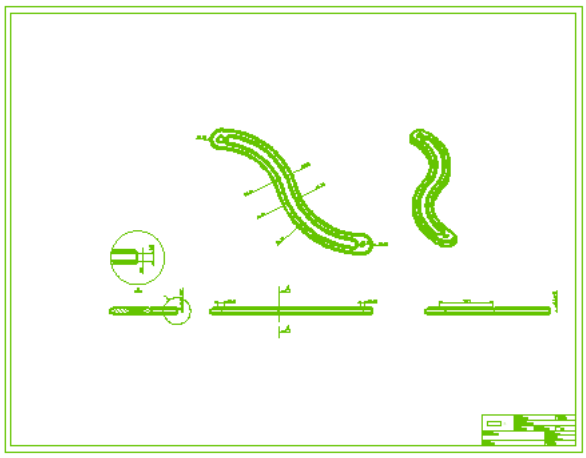
- Hit **Fit View**.



That's all it takes to create more views in a drawing. Next we shall clean up some of the dimensions.

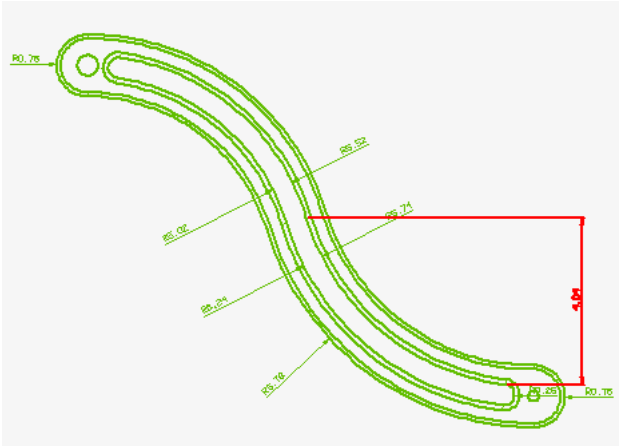
4. Step 4: Cleaning Up the Dimensions

Now that you have all the views done, you need to move some dimensions around and add a new one.



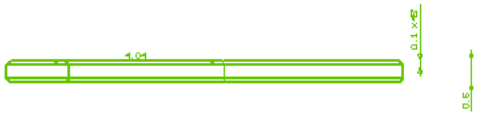
We shall start by moving a dimension from the top view to the right side view with **Change View**.

- **Zoom Window** in to the four main views.
- Click on the **Change View** button on the Drawing toolbar OR select **Modify**➪**Dimension**➪**Change View**from the pull down menu.
- Click on the 4.04 dimension.

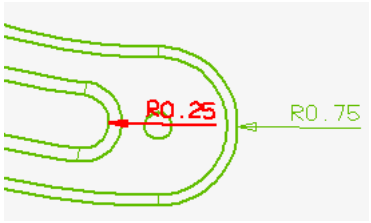


- Click on the Projected View: "c" (the right side view) to move the dimension to this view.

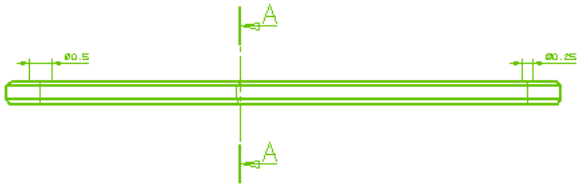
Notice the dimension is not easily read. we will take care of that soon.



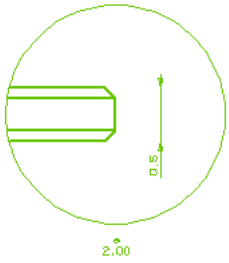
- Zoom into the lower right side of the Top view.
- Click the 0.25 dimension.



- Zoom out and click the Main view to place this dimension there.



- Click on the 0.5 dimension on the far right side of the Projected View: "c".
- **Fit View** if needed to see the detail view.
- Click on the detailed view to move the dimension to the detail view.
- Hit Esc.

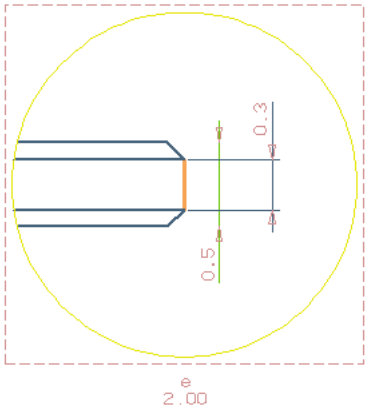


If you are doing a lot of editing, you don't have to be concerned with positioning of each dimension. **Auto-Place Dimensions** organizes all the dimensions in a single view.

- Click on the **Auto-Place Dimensions** icon on the drawing toolbar OR select **Modify**➪**Drawing View**➪**Auto-Place Dimensions**.
- Click on the detail view (Detailed View: "f") and the right side view (Projected View: "c") to automatically position the dimensions we moved.
- Hit Esc.

Now add a new dimension to the drawing using **Smart Dimension**.

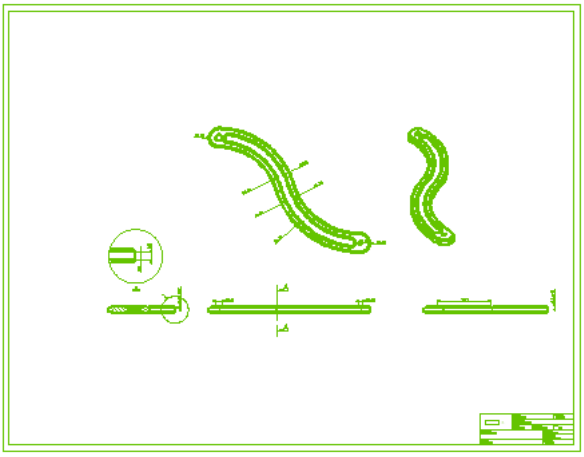
- **Zoom Window** in to the detail view.
- Select **Insert**➪**Dimension**➪**Smart Dimension**from the pull down menu OR select the **Smart Dimension** icon from the drafting toolbar.
- Click on the right vertical line of the view.
- Drag the dimension to the right and click to place it.



- Hit Esc.
- **Fit View** .

The detailed view is still writable. We are finished adding dimensions to this view, so let's close it.

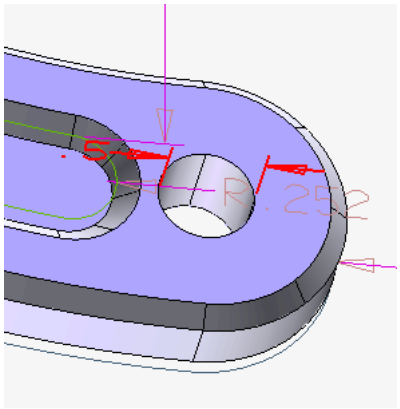
- Right click anywhere in the Graphics area and select **Set Current Group** from the context menu.



The drawing is almost done. Just a little descriptive text to add, and then we shall watch what happens when you change one of the dimensions.

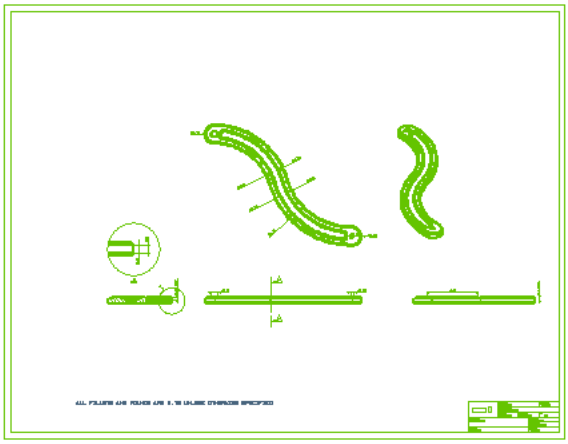
5. Step 5: Getting Skinny on Bidirectional Associability

You may think adding a note to a drawing is easy. Well, you are right. But you will also be amazed to learn that it's just as easy to change the value of a dimension in the drawing and have it update in the 3D model.



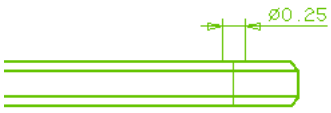
We shall start by adding a note with the **Insert Text** command.

- Select **Insert**➪**Drafting**➪**Text**from the pull down menu OR select the **Insert Text** icon from the Drafting toolbar.
- Type ALL FILLETS AND ROUNDS ARE 0.75 UNLESS OTHERWISE SPECIFIED in the Text input field in the Parameter area.
- Hit the Tab key three times to move the input focus to the Height field in the Parameter area OR click the mouse in the Height field.
- Set the Height to 0.28 and hit Tab the key again to initialize the height.
- Click in the drawing near the bottom border of the template to place the text.
- Hit Esc.



With the note complete, let's see what happens when we change the diameter dimension of one of the holes.

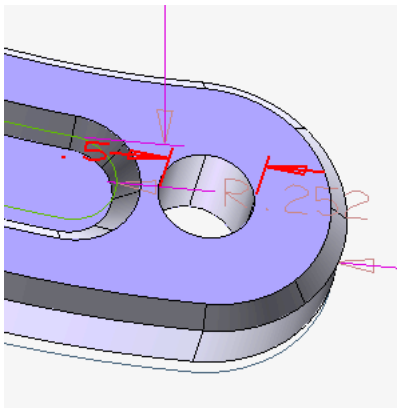
- **Zoom Window** in to the 0.25 dimension in the top projected view (Main View: "a").



- Double click on the dimension.
- Change its value to 0.5.
- Hit the **Rebuild Model** button in the dialog box.

All of the views in the drawing get updated to reflect the change. But wait, there is some more!

- Change to the model window.
- **Zoom Window** in to the lower right hole feature in the model.



It now has a value of 0.5 as well. Make a change in the drawing and it updates the model, or make a change in the model and it updates the drawing. That's called Bidirectional Associability.

Well done !!.