

Generative Drafting (ISO)

Detailed Steps

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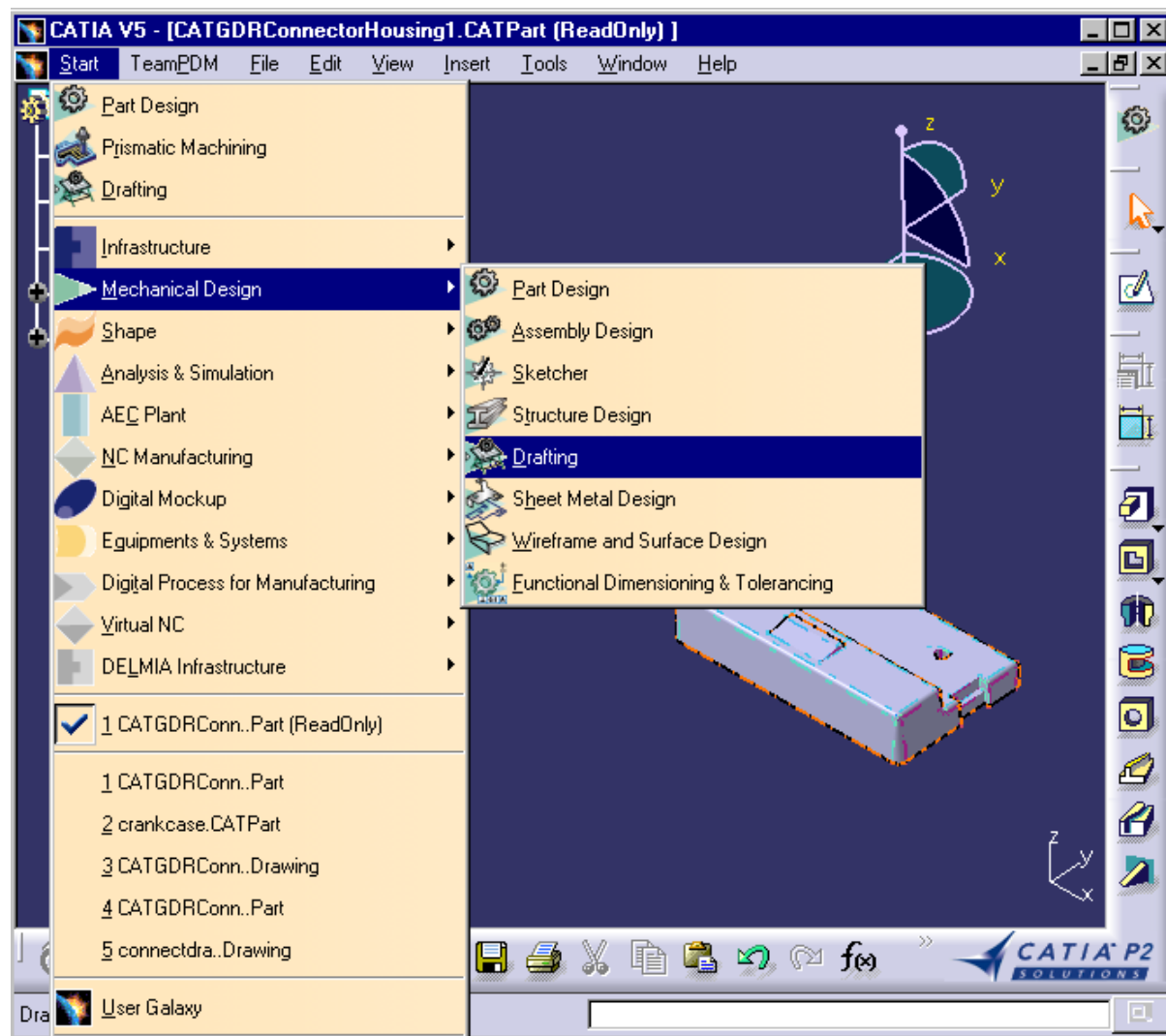
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Connector Housing

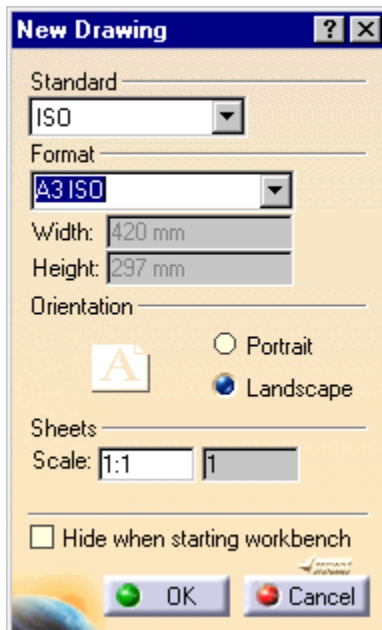
Step 1 - Views Generation

Go to the Drafting workbench and define the standard and the sheet format.

1. Select **Drafting** in the Start menu

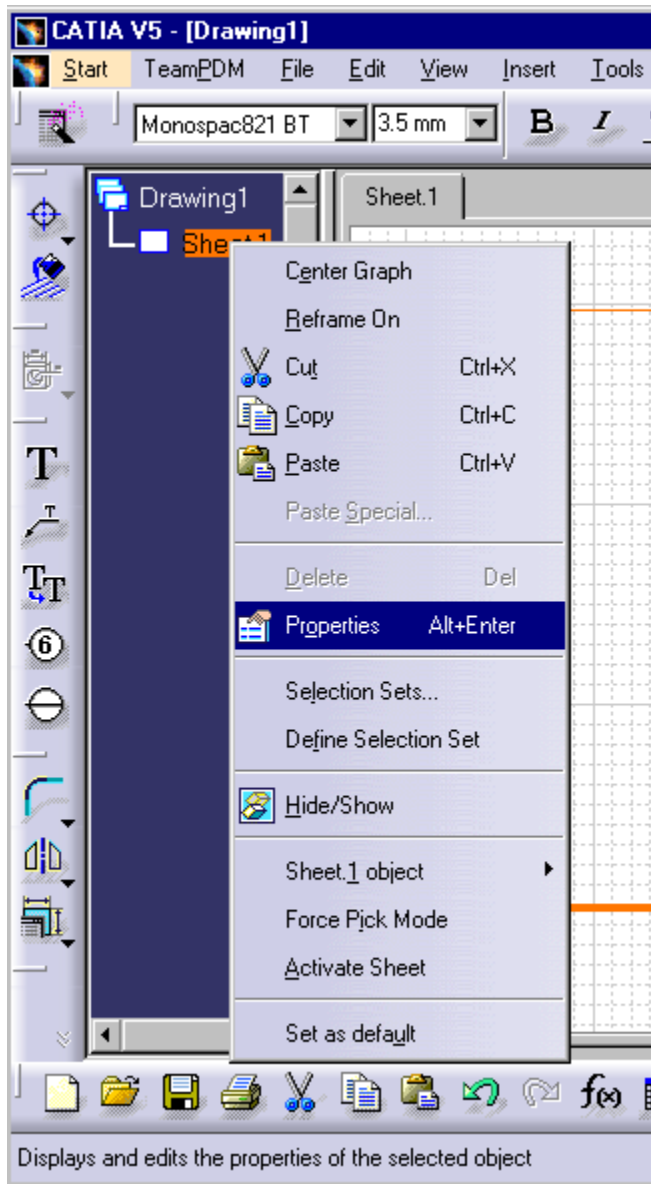


2. In the New Drawing panel select **ISO** as standard and **A3ISO** as sheet format, then click on **OK**.

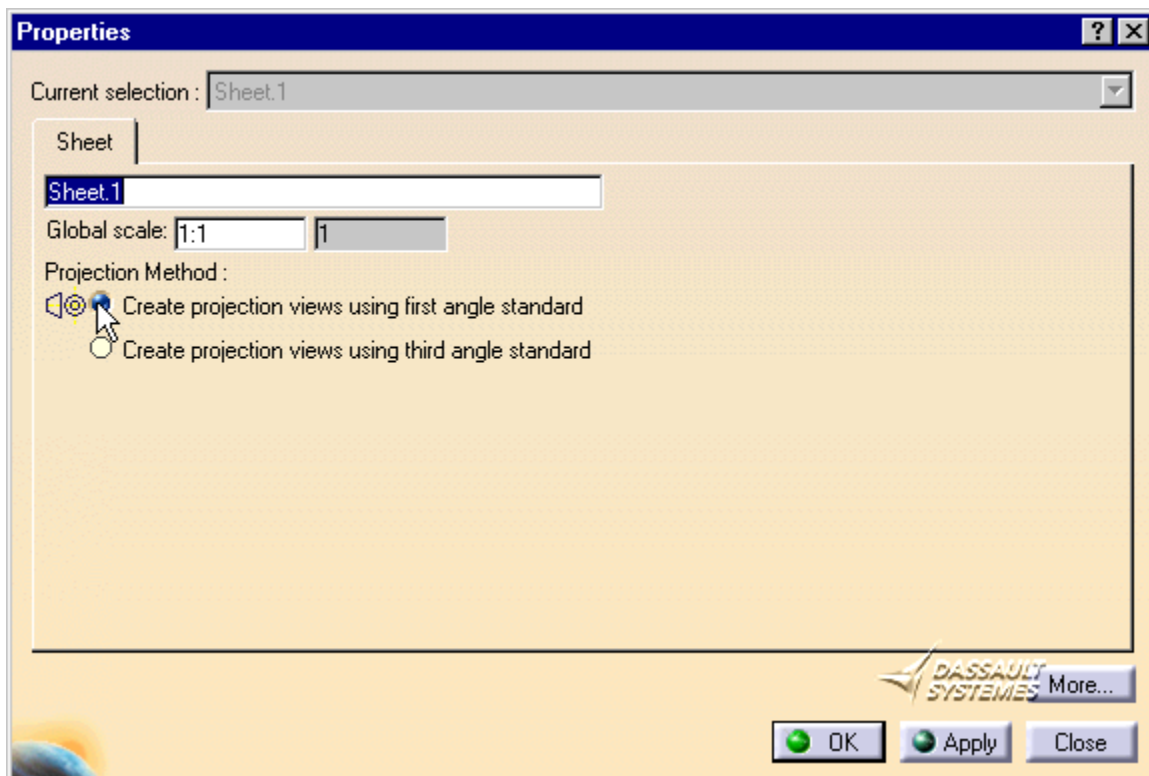


Set the angle projection method and create the main views.

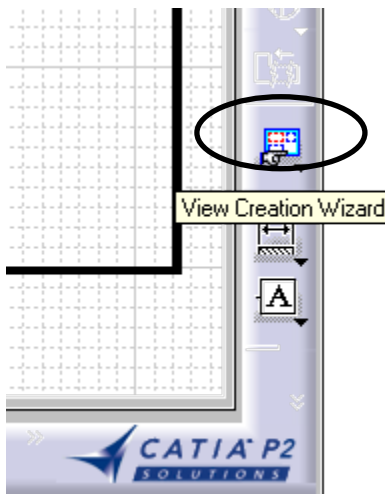
3. Select **Sheet1** in the tree then open a **contextual menu** with the third mouse button and select **Properties**.



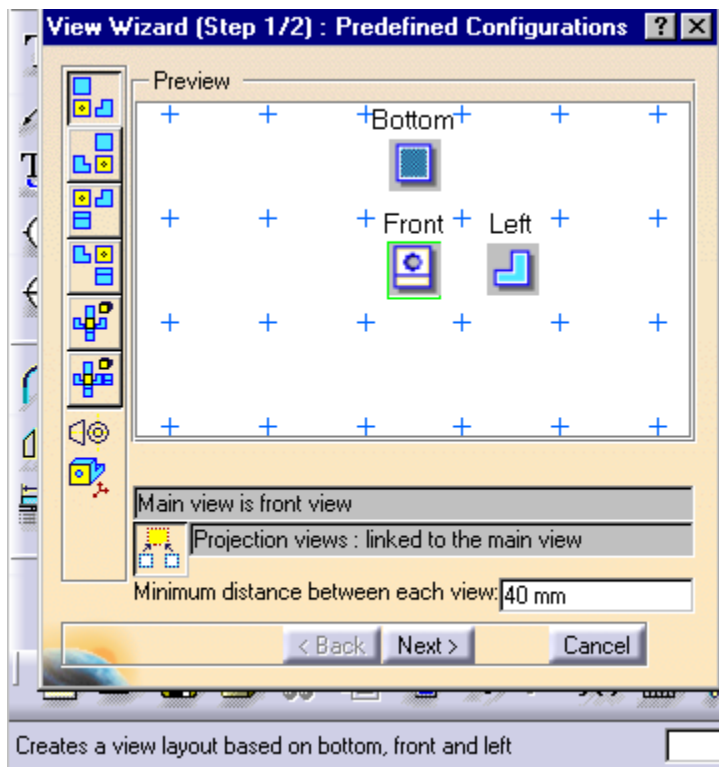
4. In the properties panel select Create projection views using first angle standard then click on OK



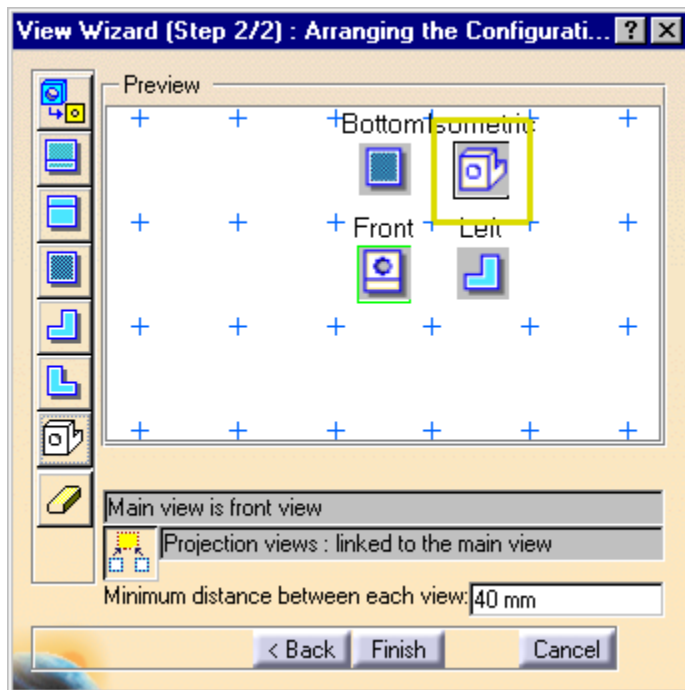
5. Click on the **View Creation Wizard** icon.



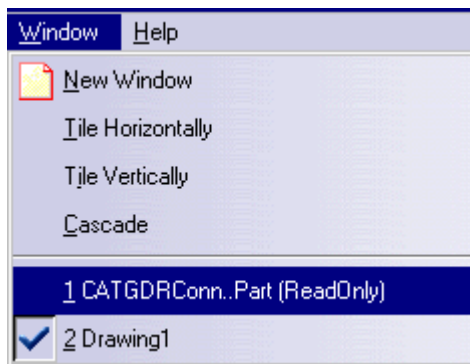
6. Select the **first configuration**, which creates a layout based on **bottom; front and left views** then click on the **Next** button.



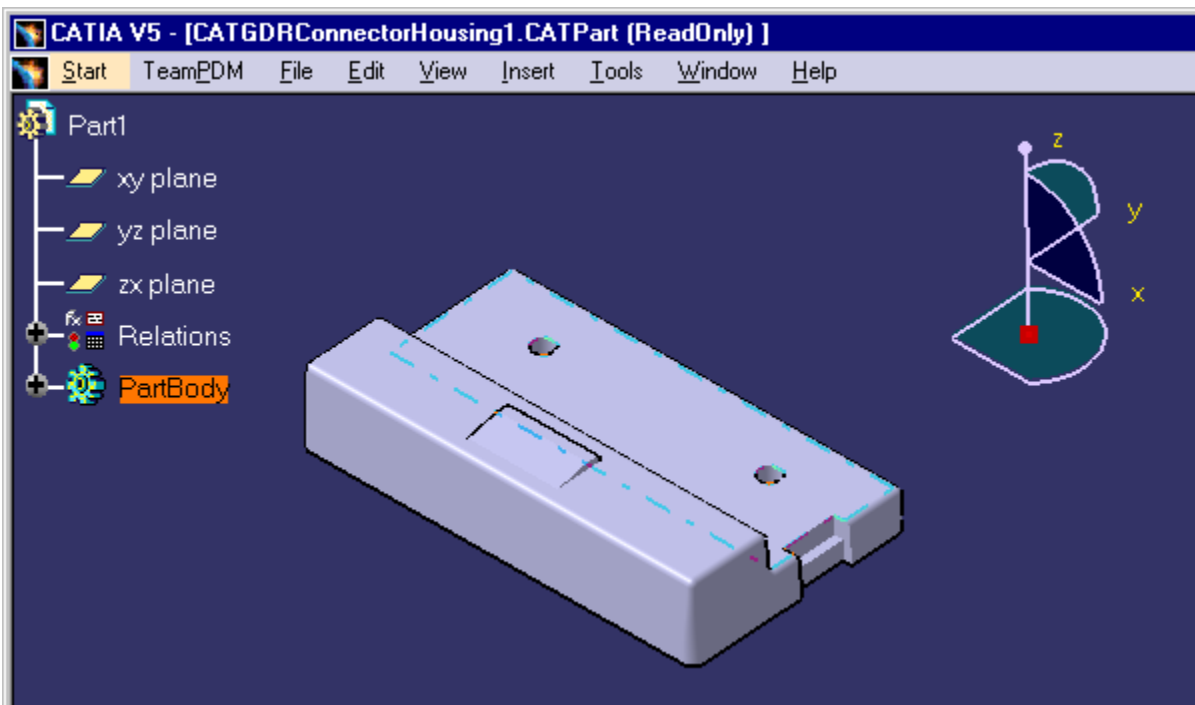
7. Click on the **Isometric View** button, then place the view in the top right of the layout, **click** once to accept the place of the view then click on **Finish**.



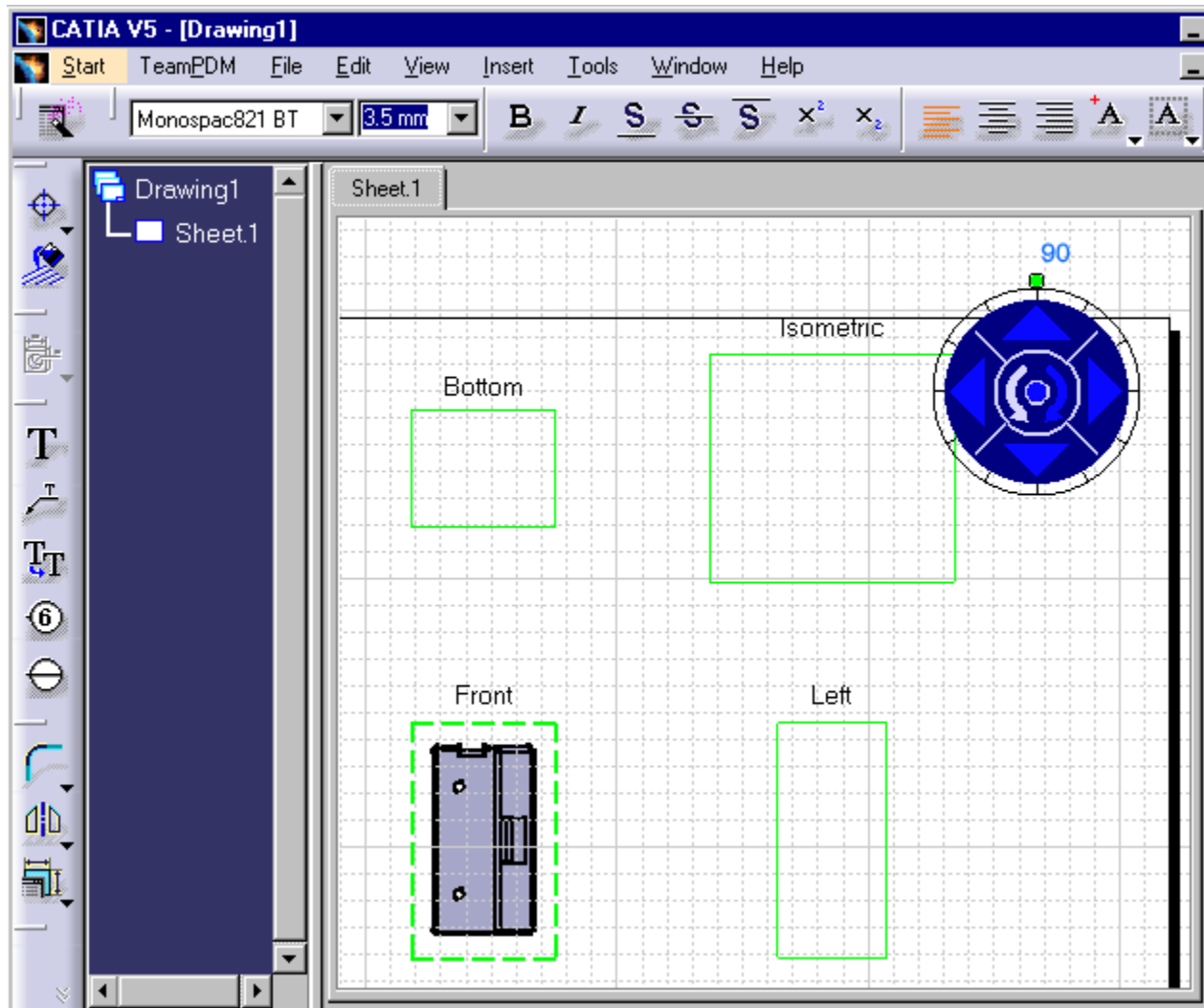
8. Select the **part window** in the Window menu.



9. Click on a **3D surface** as reference to generate the views

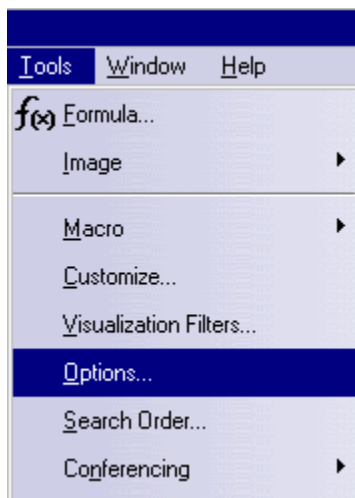


10. Use the **view manipulator** in order to have the view in the following configuration then **click** anywhere on the sheet to generate the views.

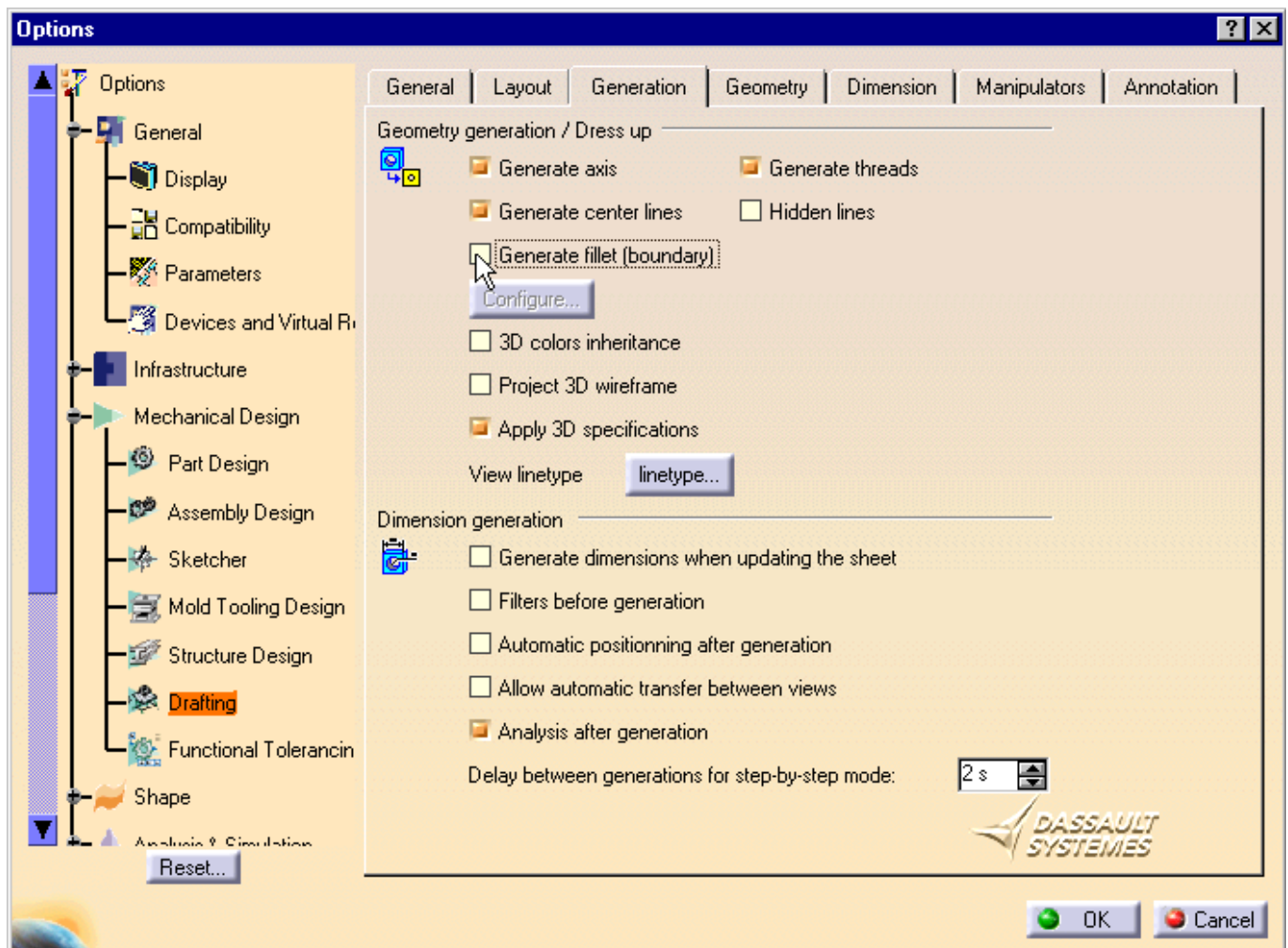


Set the fillet generation off and save the drawing.

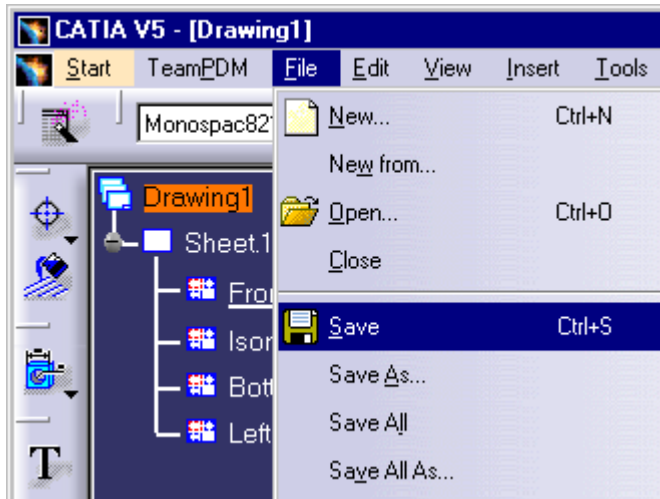
11. Select **Options** in the Tools menu



12. Select **Drafting** Options in the left pane list then select the **Generation** tab. Deselect the **Generate Fillet** option (boundary) in Geometry generation, then click on **OK**



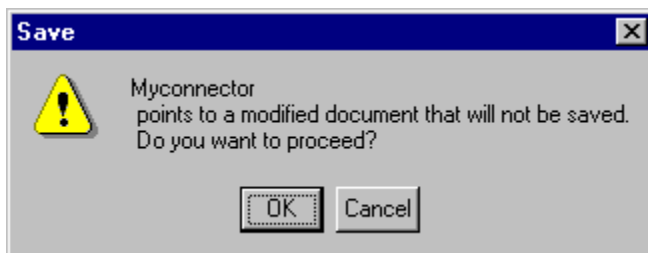
13. Select **Save** in the File menu



14. **Rename** the drawing in the Save As panel then click on the **Save** button



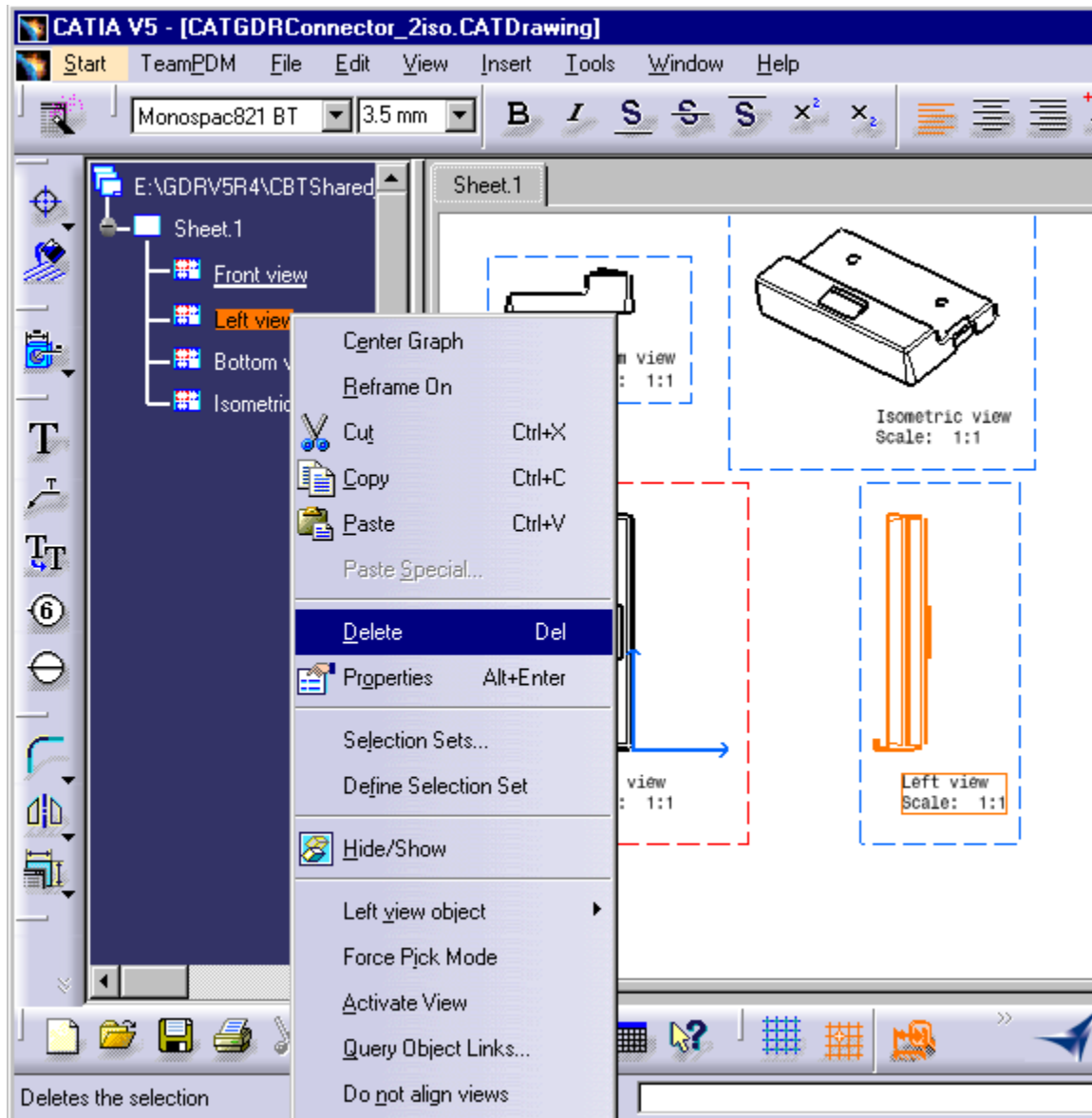
15. Select **OK** in the information panel that just informs you that the linked part will not be saved.



Step 2 - Additional Views

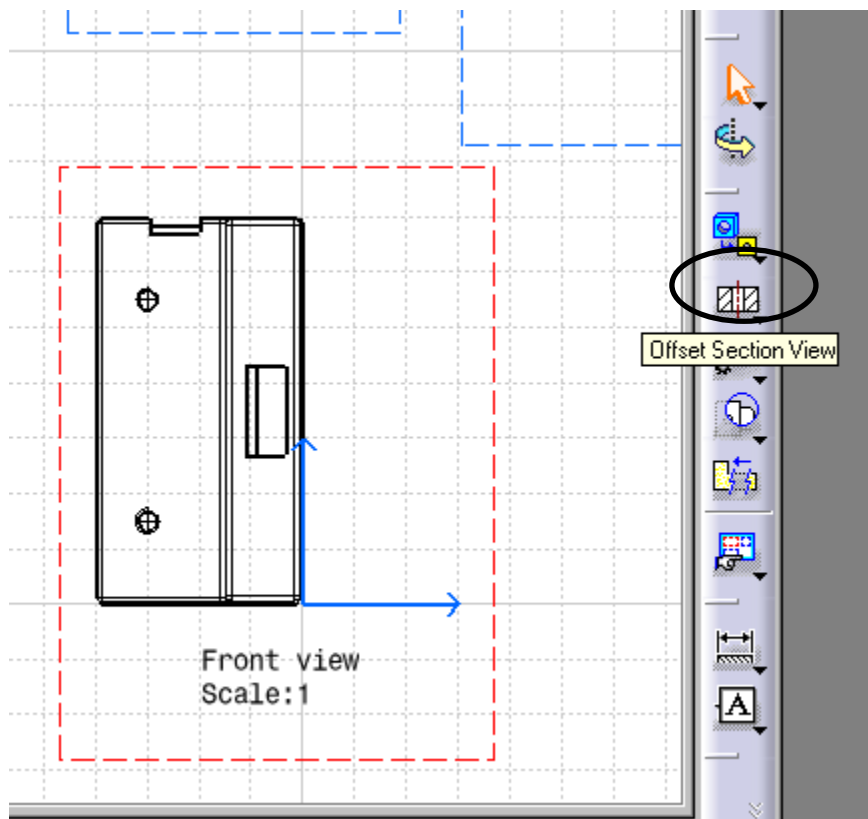
Delete left view

1. Select the **left view** in the tree, open a **contextual menu** and choose **Delete**.

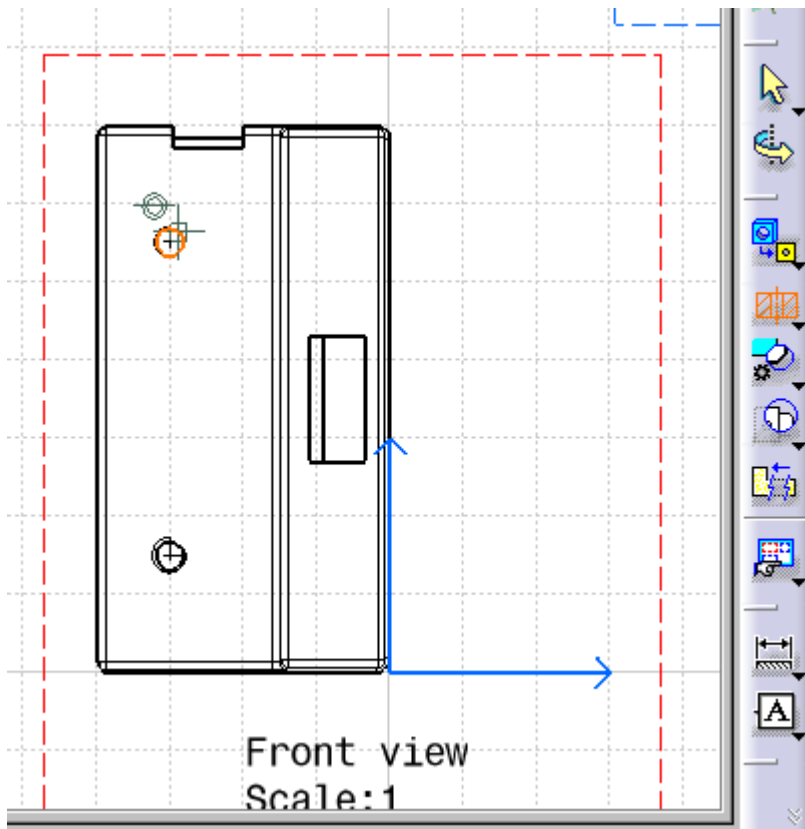


Generate a section view passing through the middle of the two holes

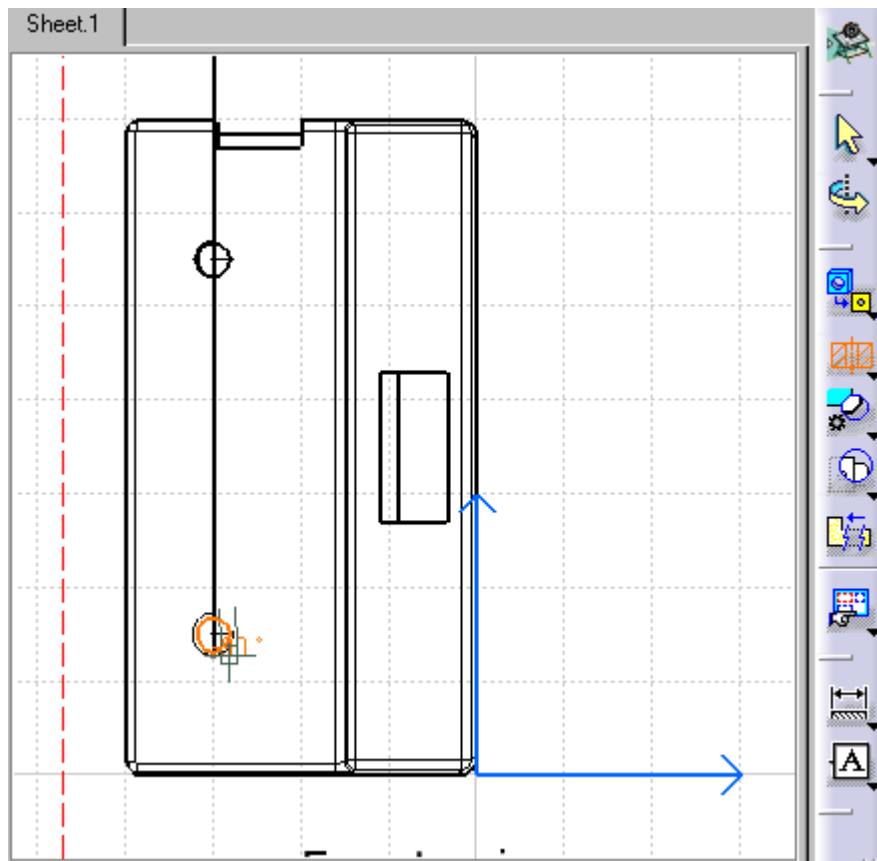
1. Click on the **Section View** icon



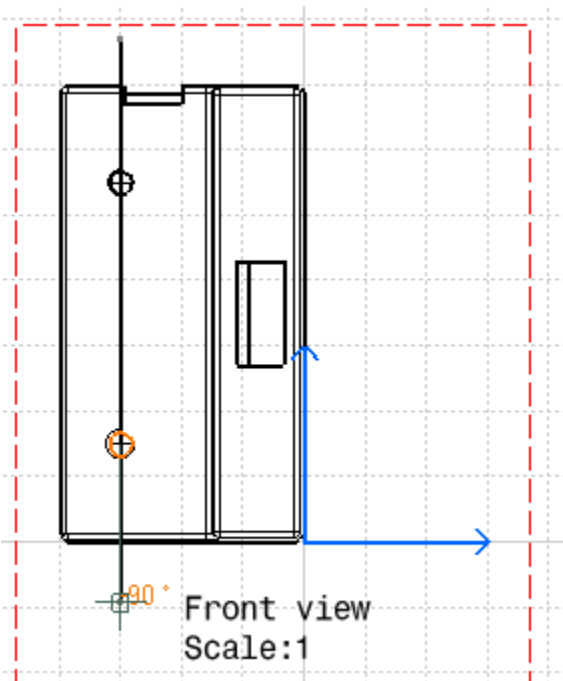
2. Click on the **upper hole**.



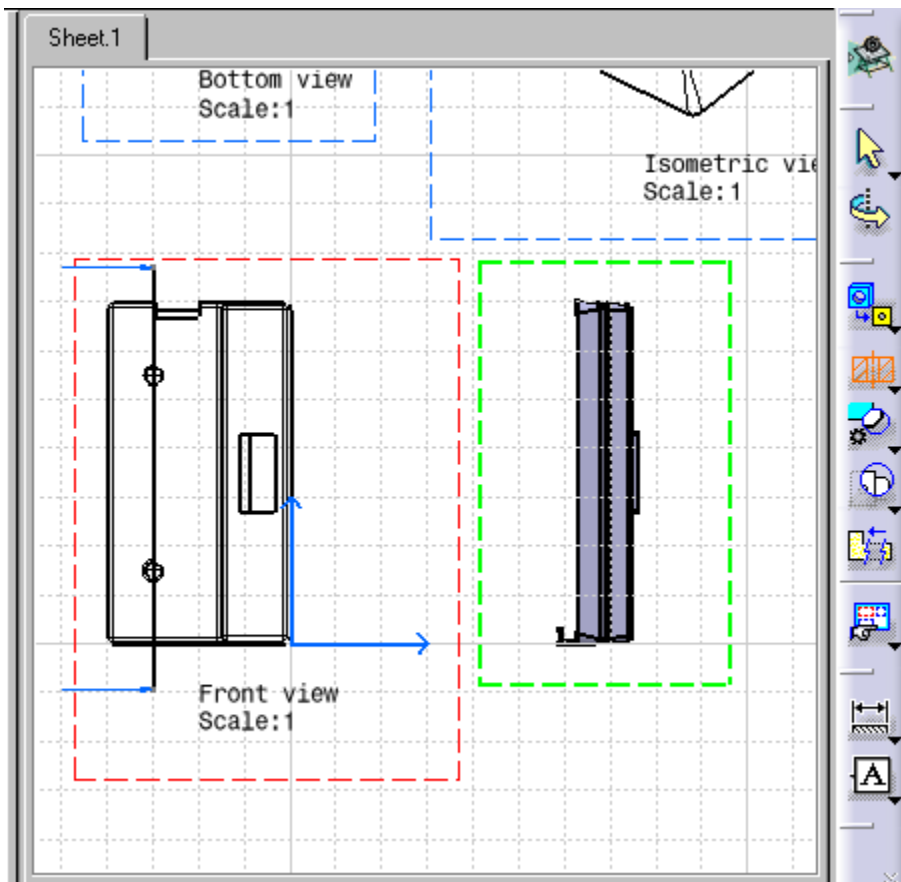
3. Click on the **lower hole**.



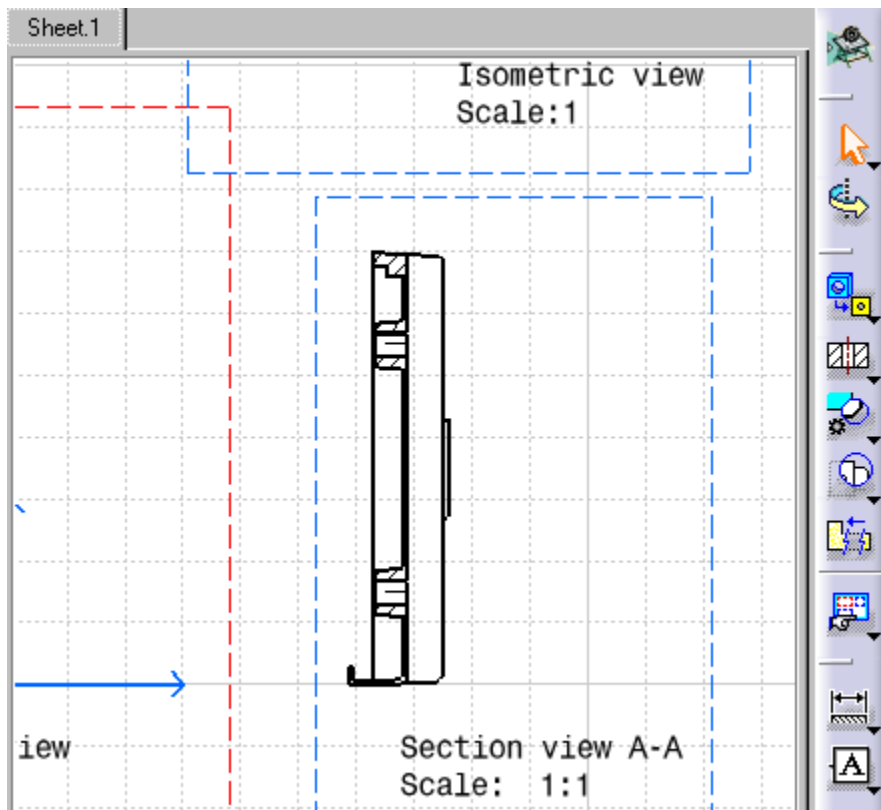
4. Double click **under the geometry** of the view to end the Offset section view profile



5. Place the view preview on the **right of the front view**

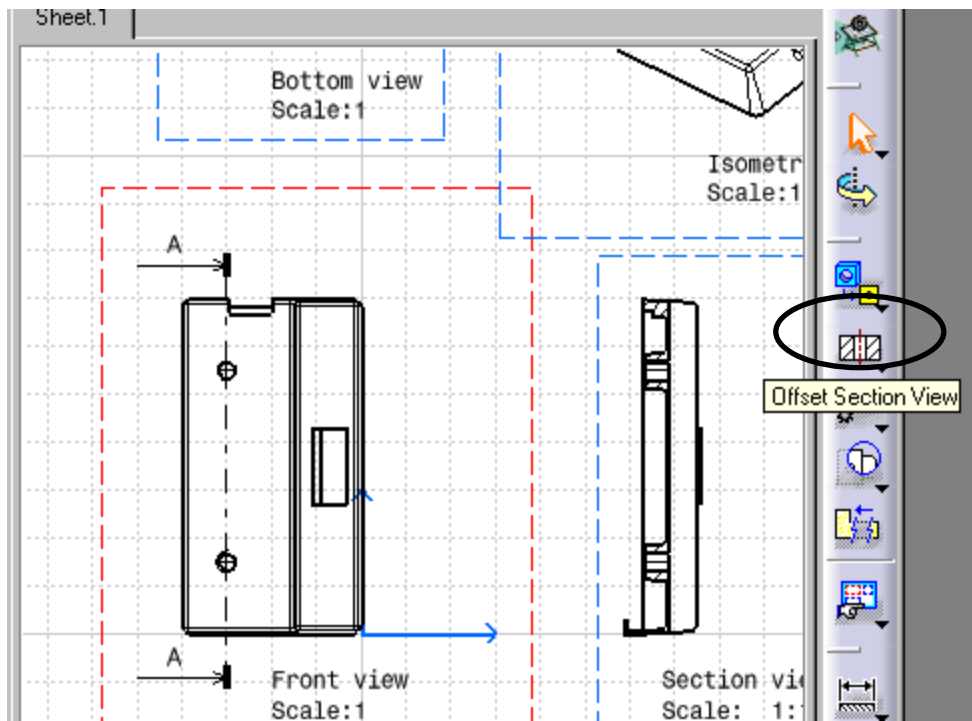


- Click in the **sheet** to generate the Offset section view

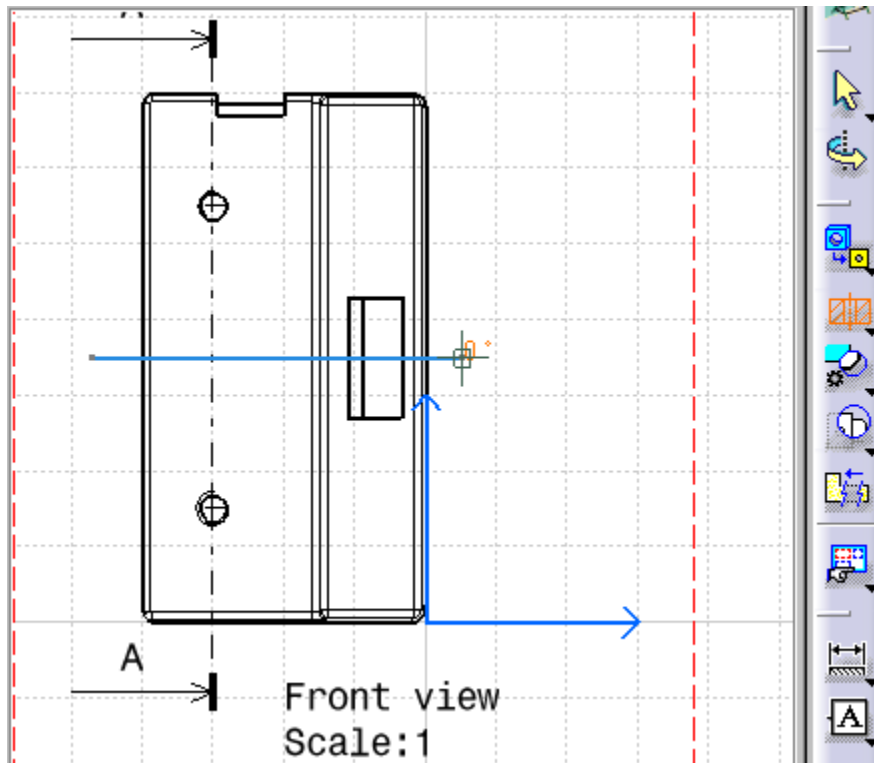


Generate Section view B-B.

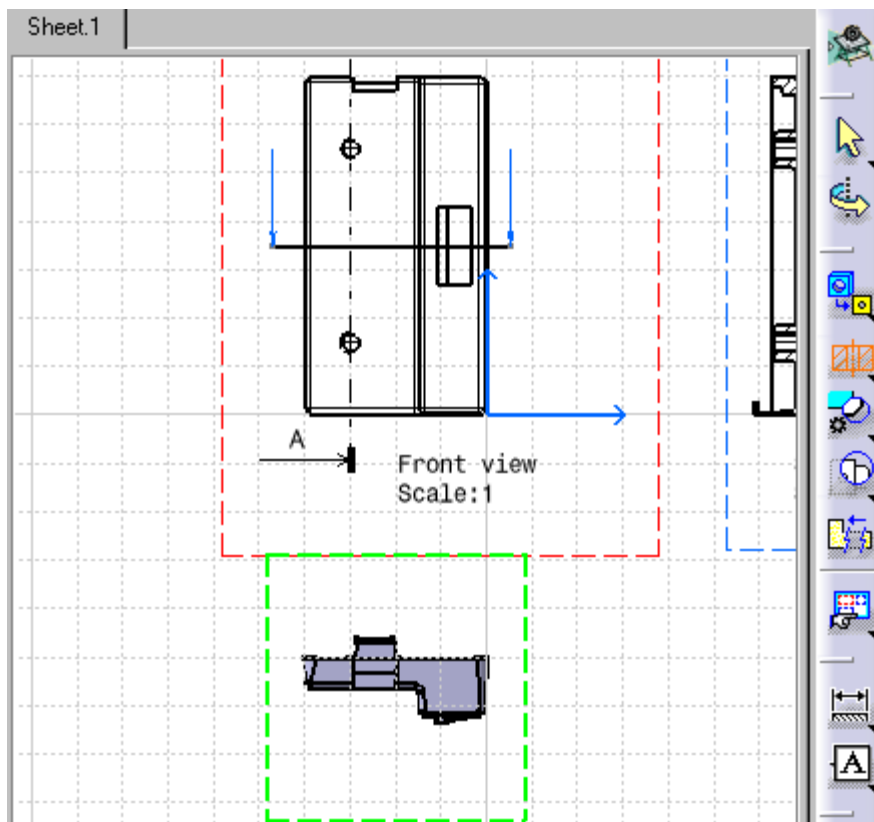
- Click on the Offset Section View icon

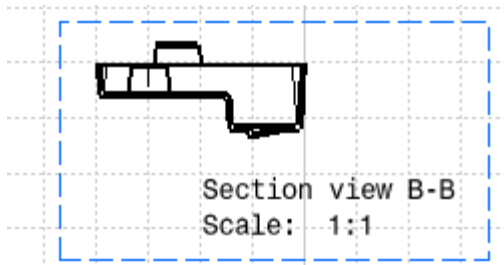


2. Build the following **Offset section view profile** with the same method described for the section view A-A. **Double click** to end the profile.

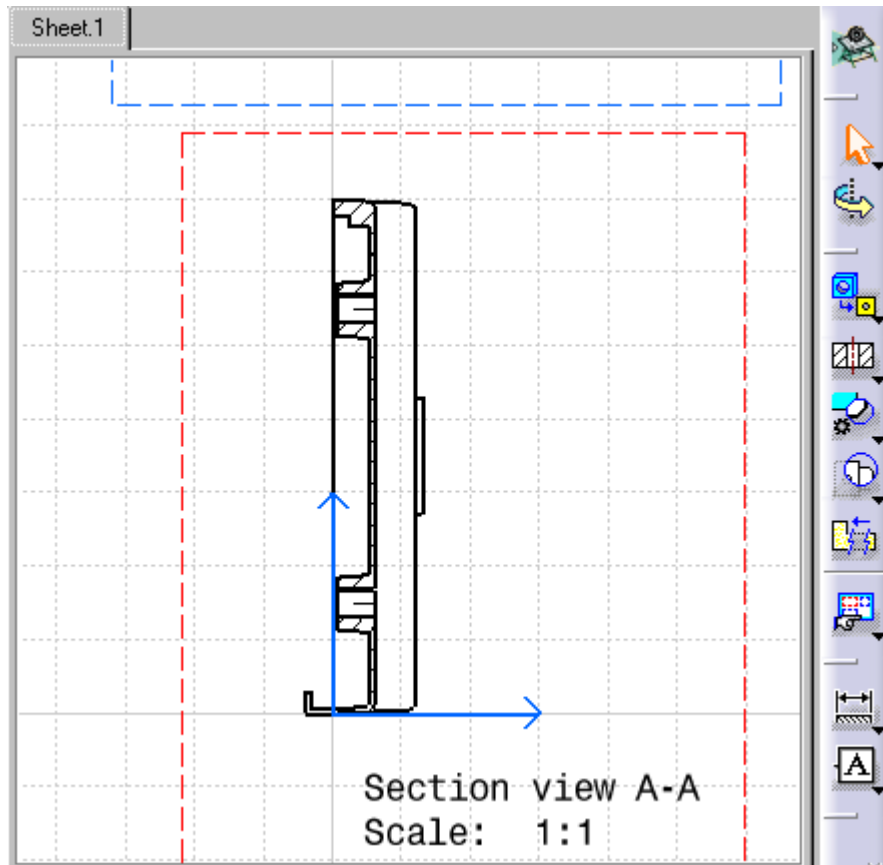


3. Click on the **sheet** where you want to place the view in order to generate it.



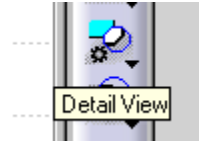


4. Double click on the **blue frame** of the section view A-A to activate it.

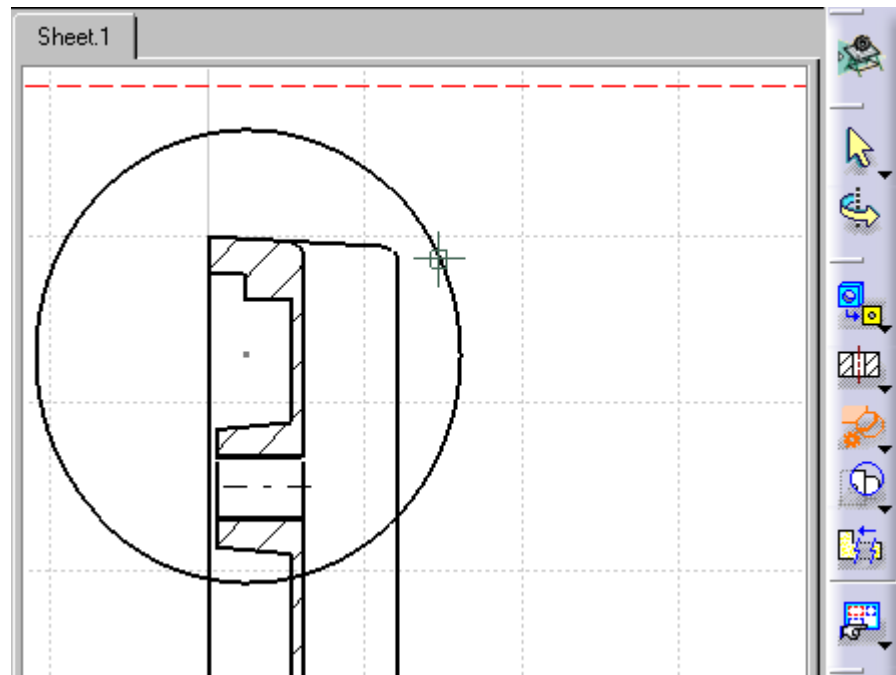


Generate Detail View C of the Detent.

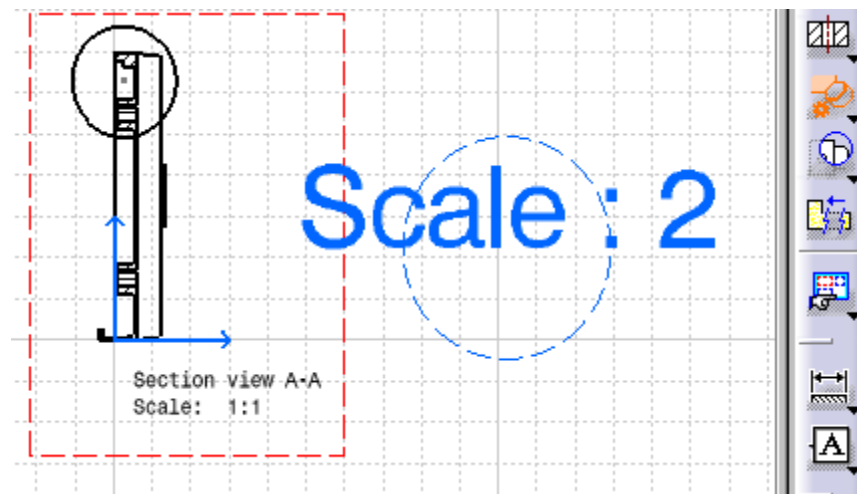
1. Click on the **Detail View** icon.



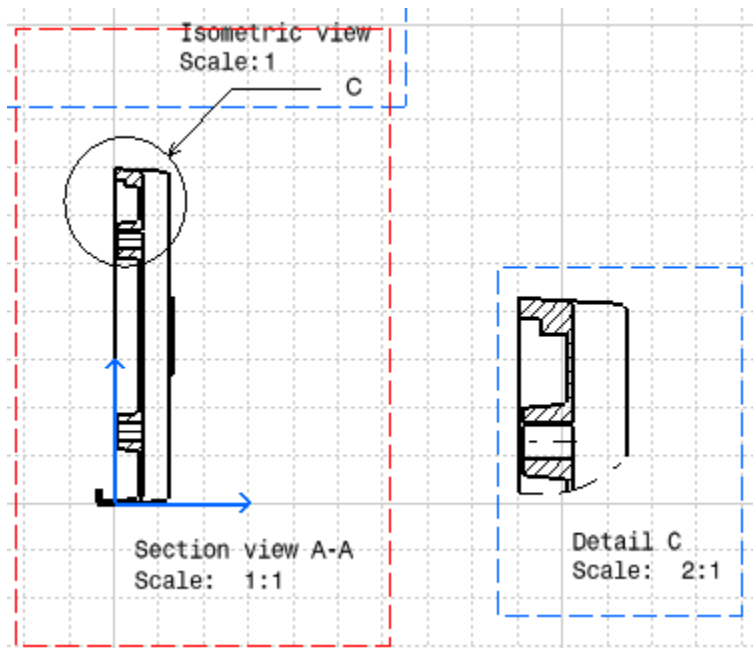
2. Build the **Detail view profile** by two clicks.



3. Place the Detail View preview to the **right of the Section view A-A**.

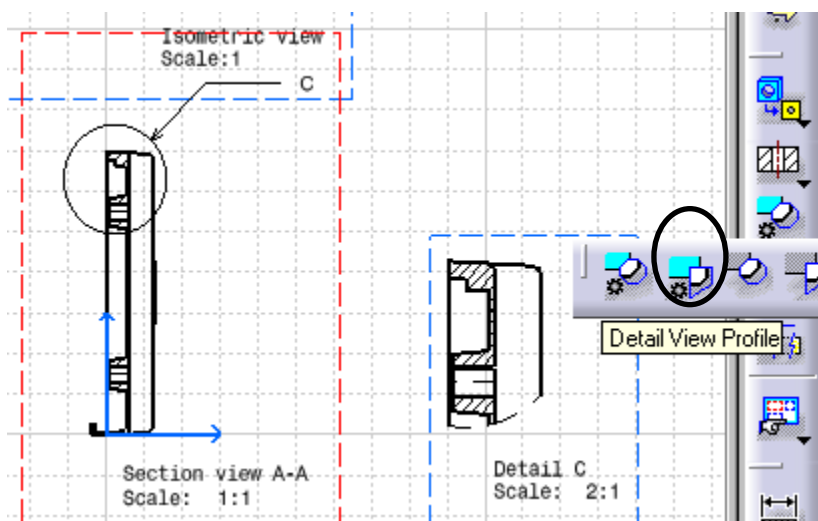


4. Click once where you want to generate the Detail View

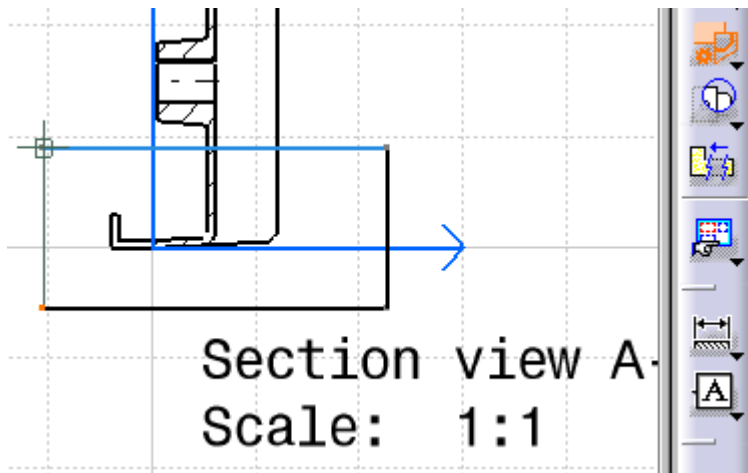


Generate Detail view D around the Clip.

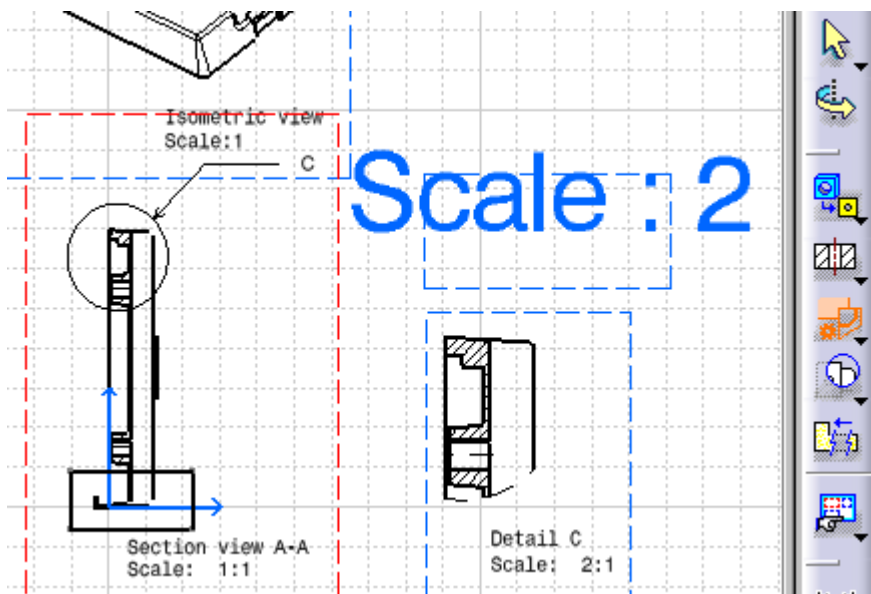
1. Click on the Detail View Profile icon

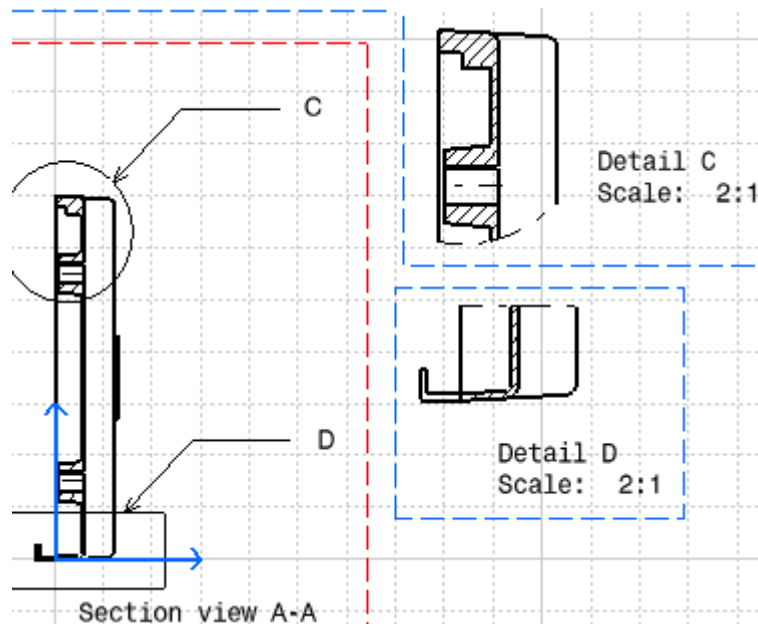


2. Build a **Detail View profile** around the **clip** of the Section View A-A



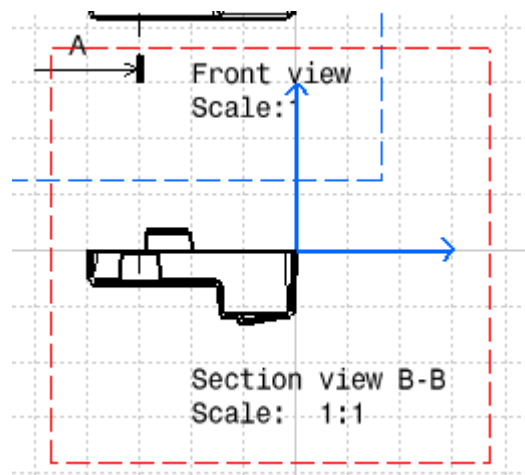
3. Place the **view preview** on the sheet, then **click** once to generate the Detail view.



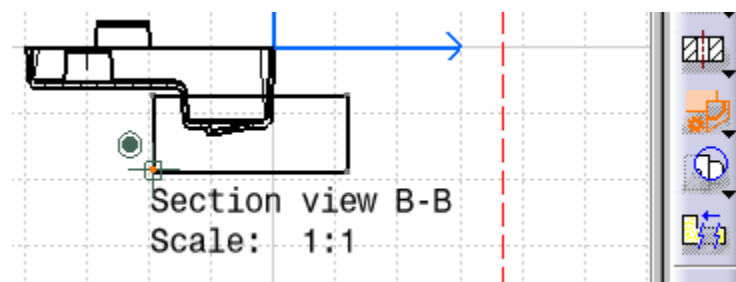


Generate Detail View E around the Catch.

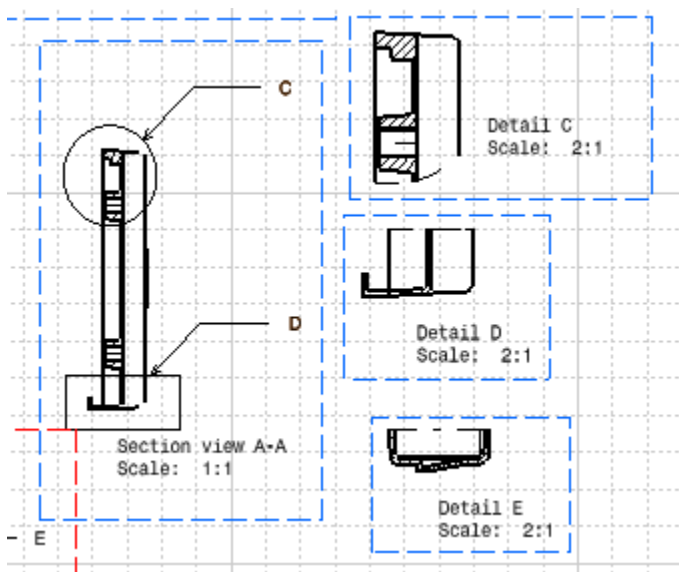
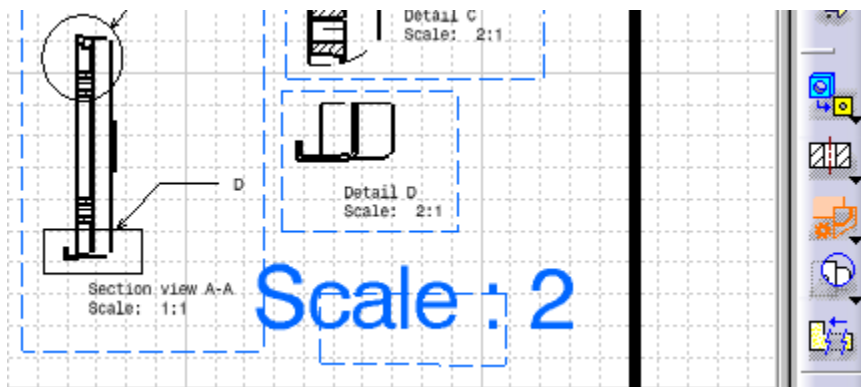
1. Double click on the **blue frame** of the section view B-B to activate it



2. Click on the **Detail View Profile** icon then build the following detail view profile.

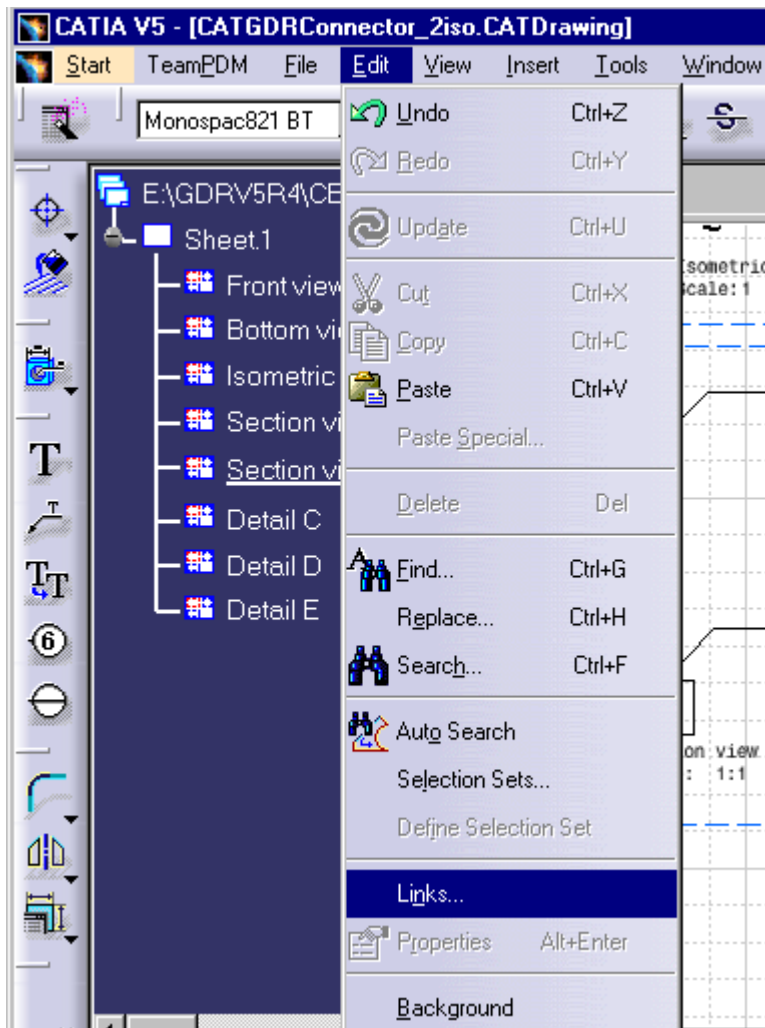


3. Place the Detail Preview **under the other detail views** then **click** once to generate the Detail view E.

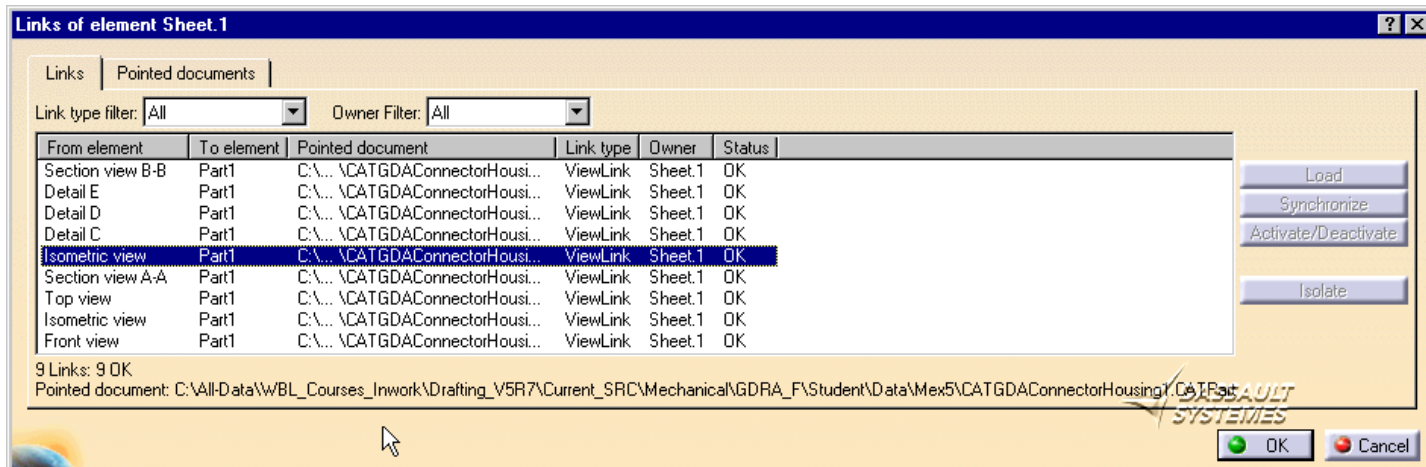


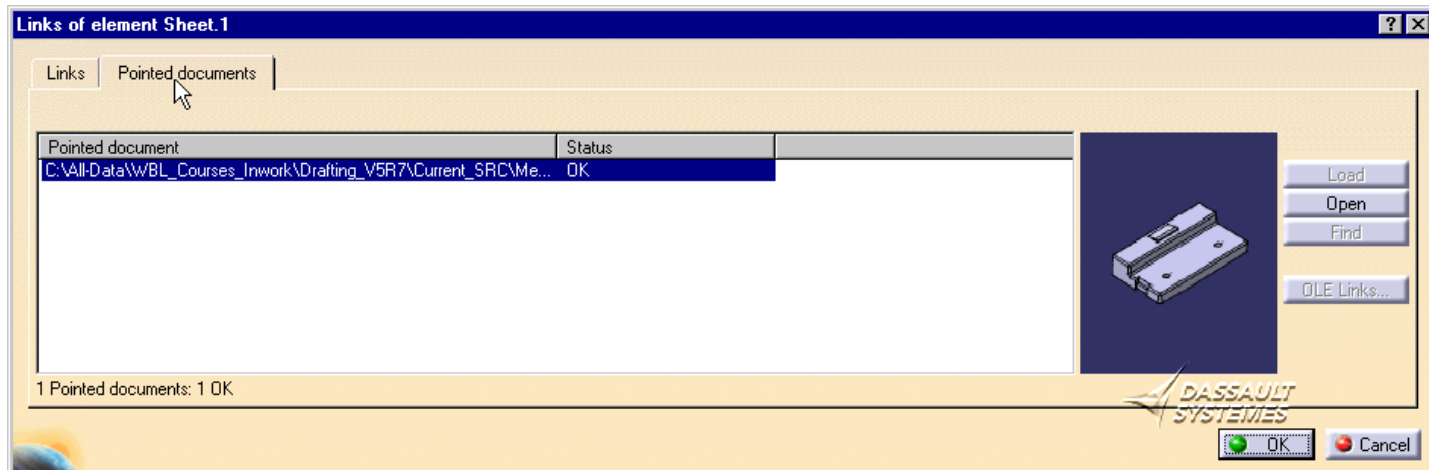
Generate an isometric view showing the inside of the connector housing.

1. Select **Links** under the Edit menu

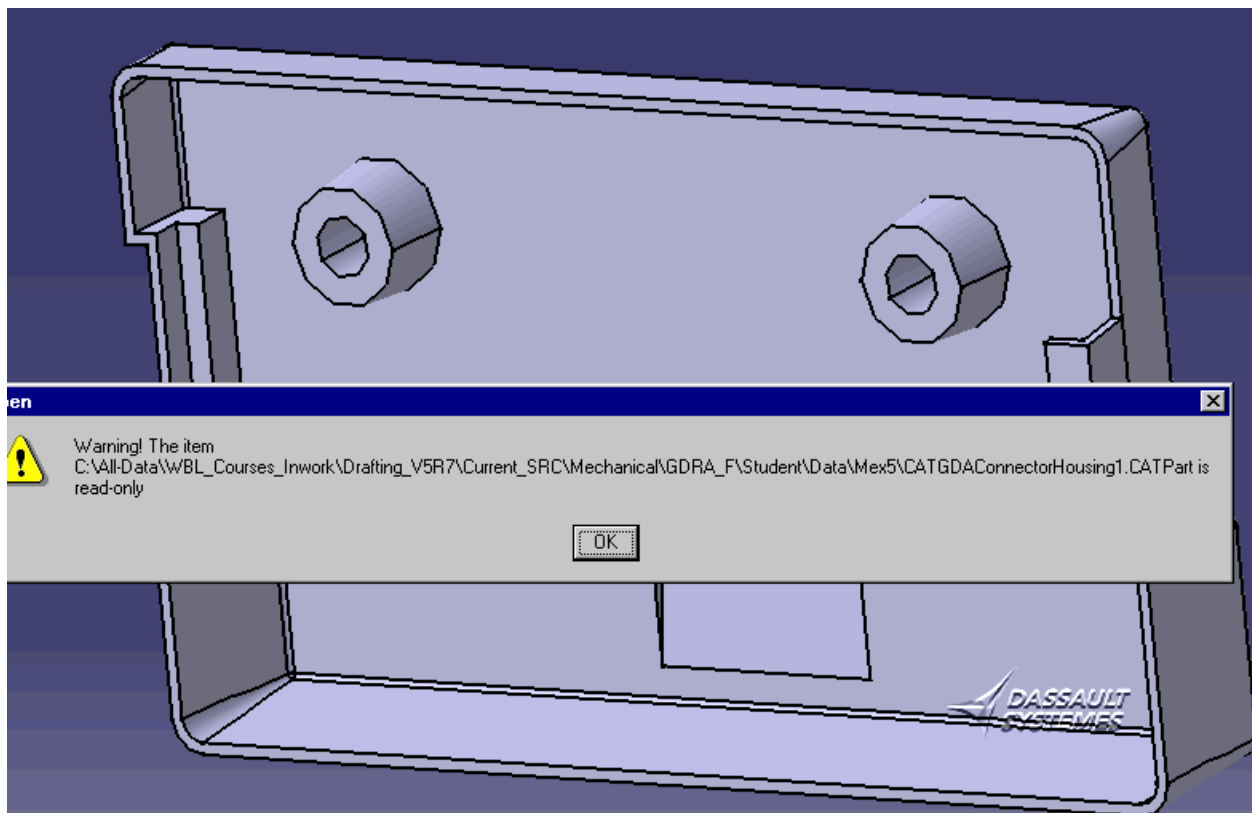


2. Select a **view** in the list, then click on the **Pointed Documents** Tab.

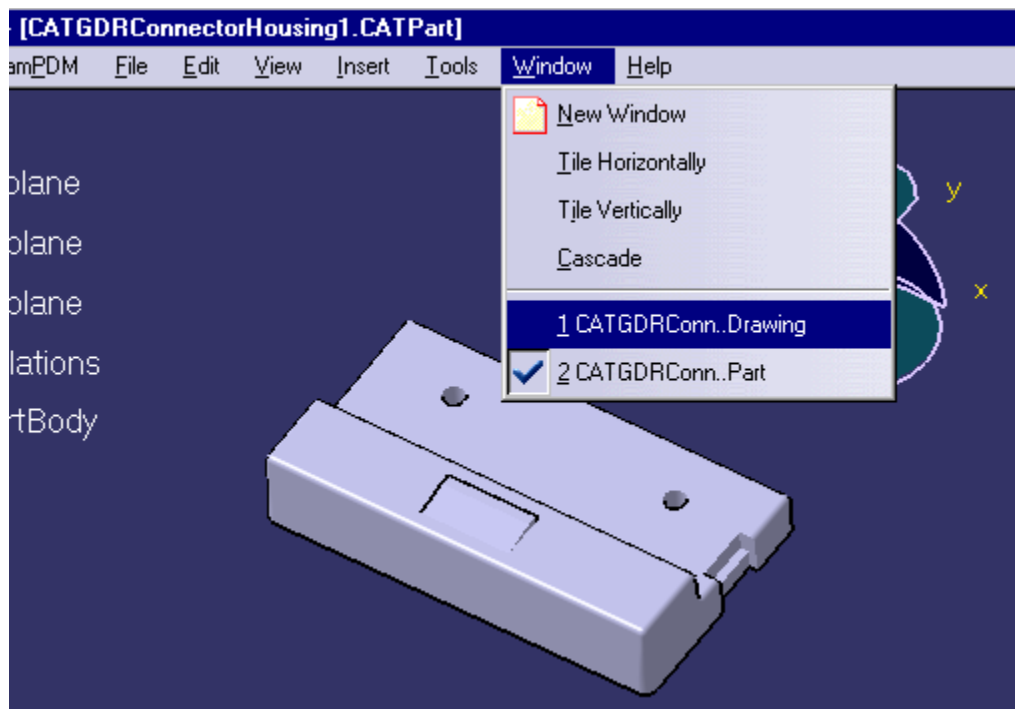




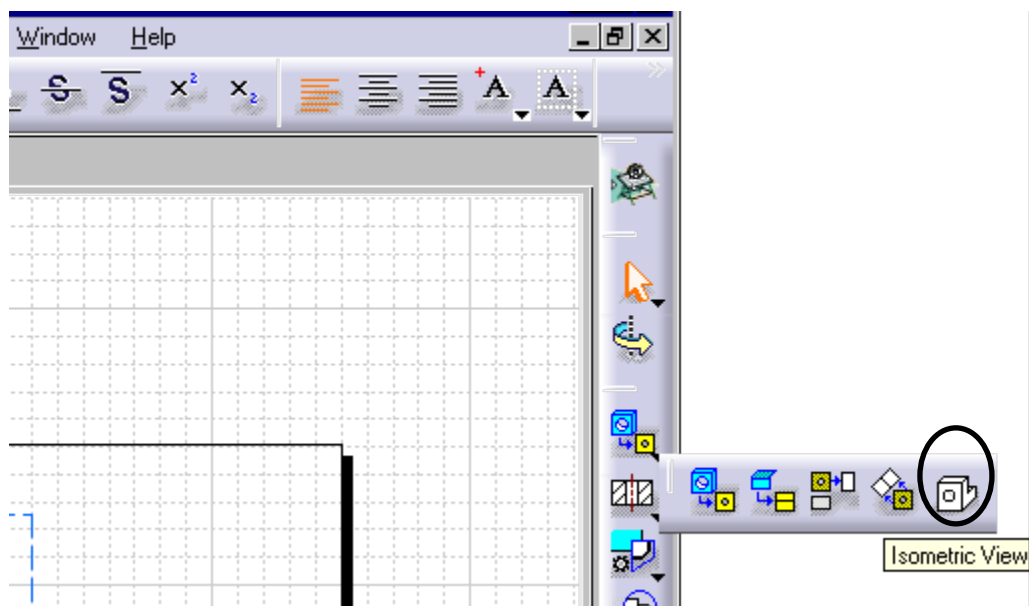
3. Select the **Open** button to open the linked CATPart.



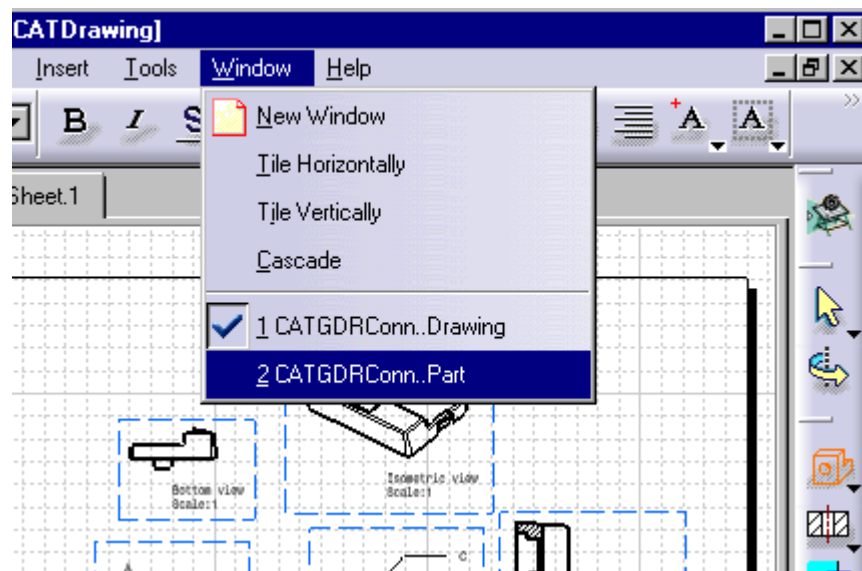
4. Return to the **drawing** window.



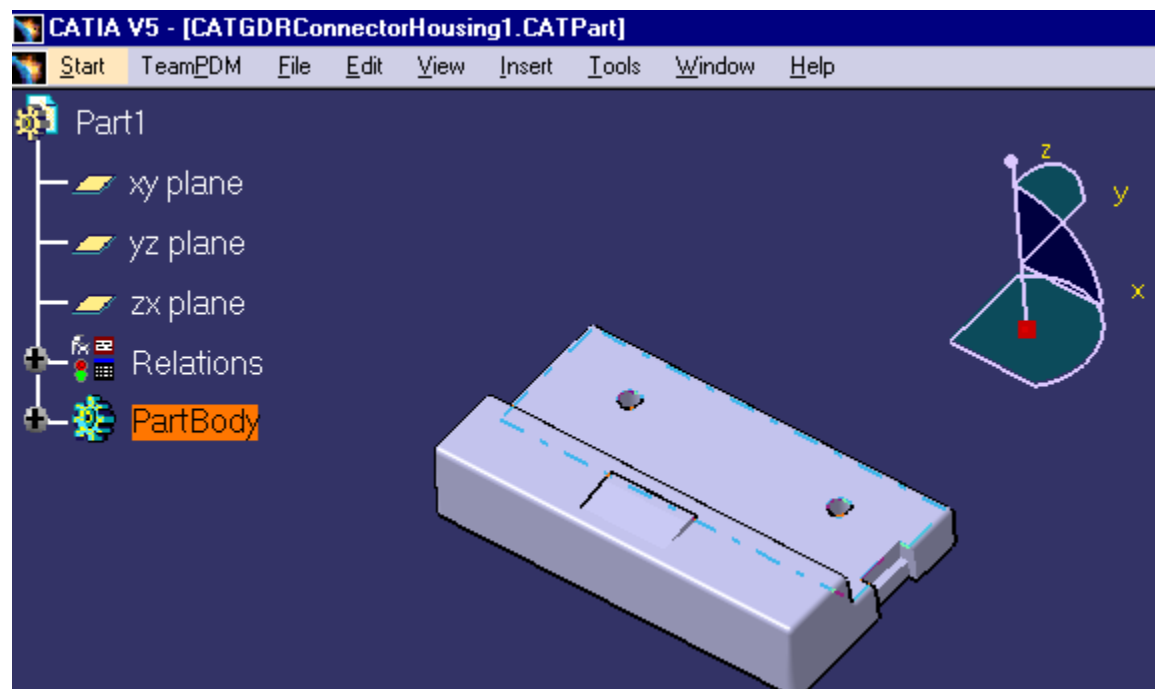
5. Click on the **Isometric View** icon



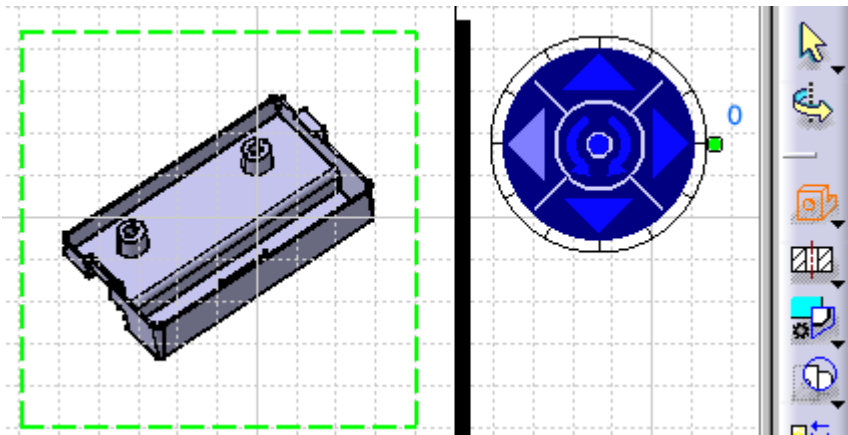
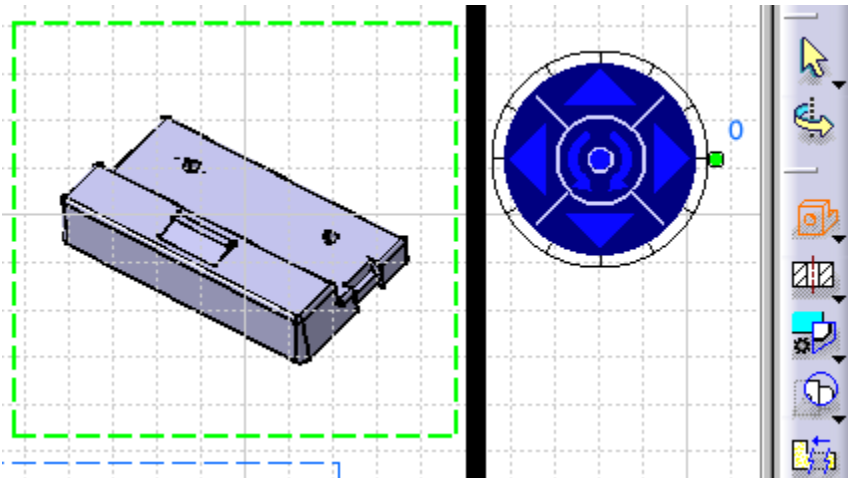
6. Go to the CATGDRConnectorhousing.CATPart window.



7. Select a **3D surface** as reference plane



8. With the Dial (the view manipulator) **rotate** the isometric view in order to obtain a **view showing the inside** of the part.

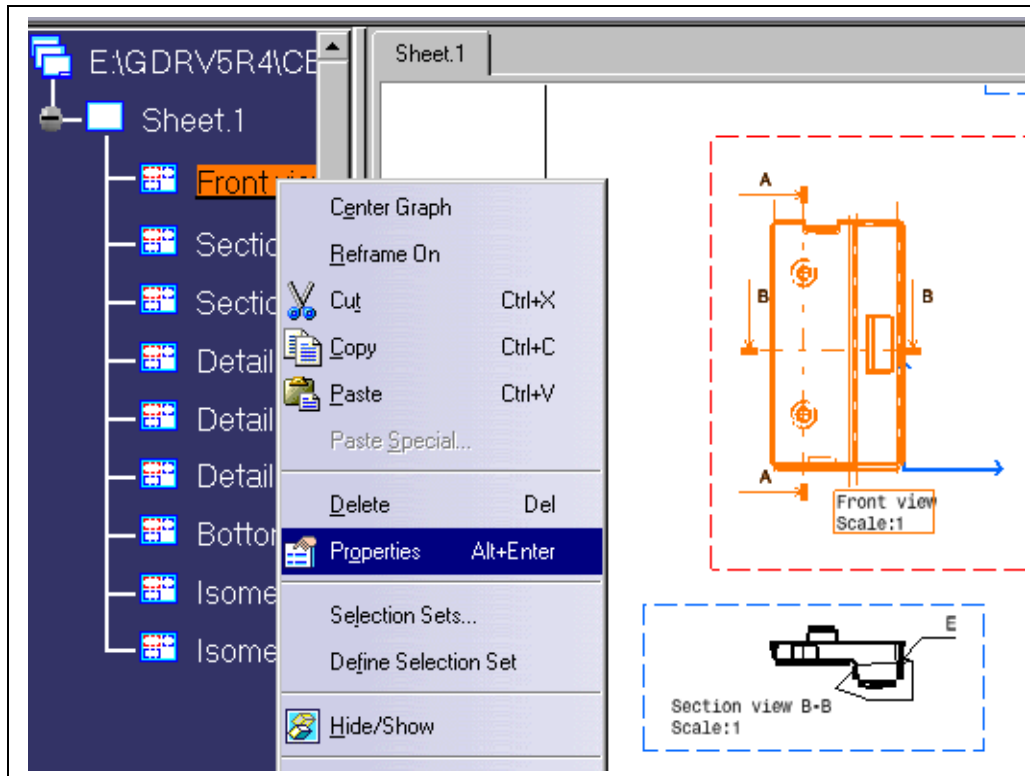


9. **Click** once to generate the isometric view.

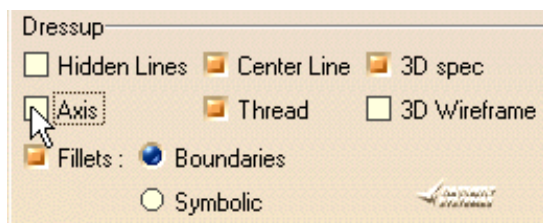
Step 3 - Properties

Remove all unnecessary hidden lines in the front view

1. Open a **contextual menu** on the **front view** in the tree

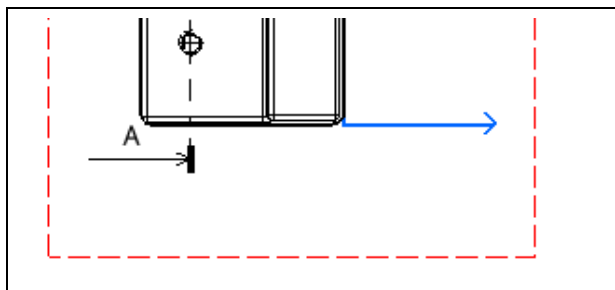
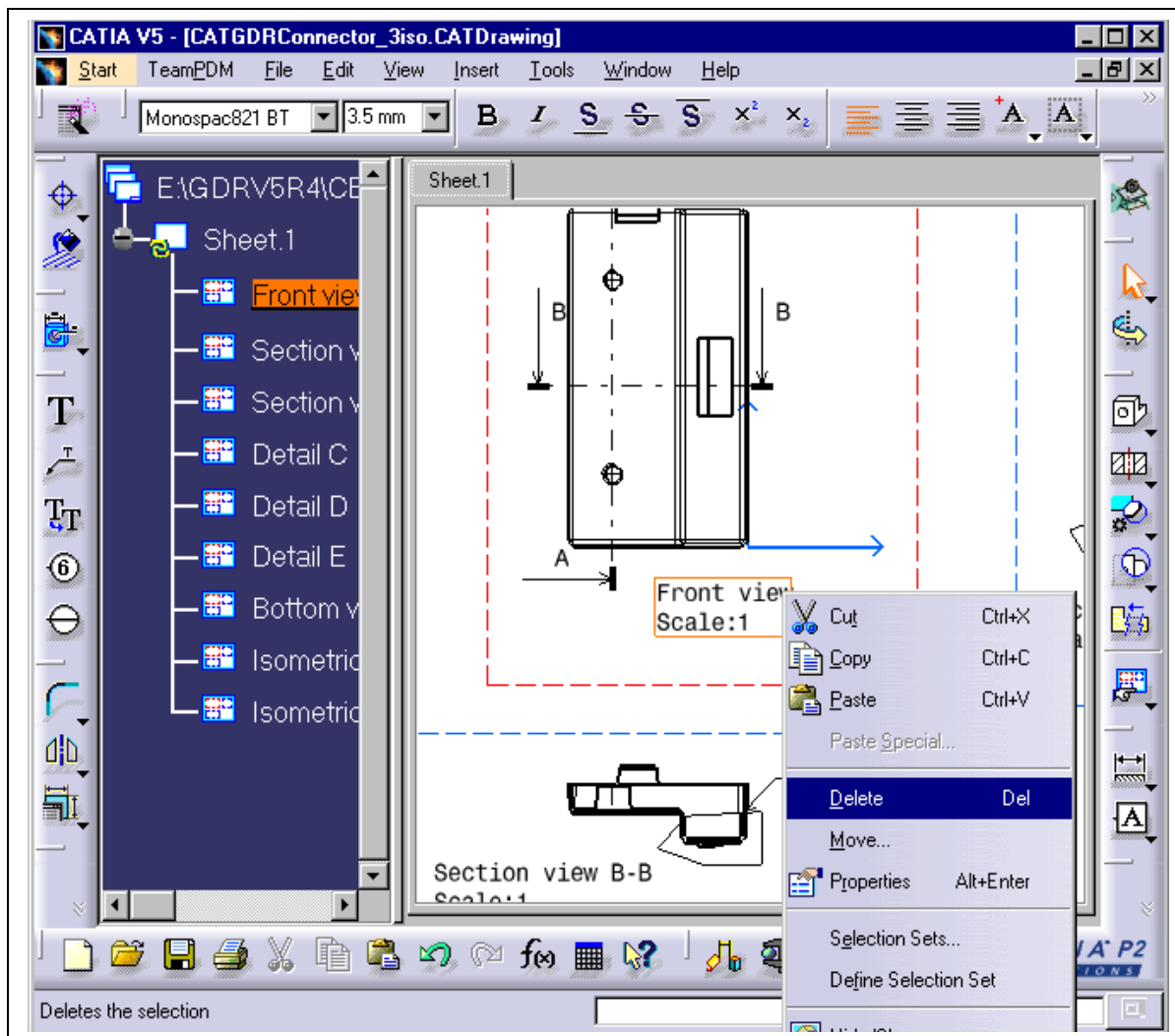


2. In the properties panel, uncheck the **Hidden Lines** and **Axis** options, then click on **OK**.

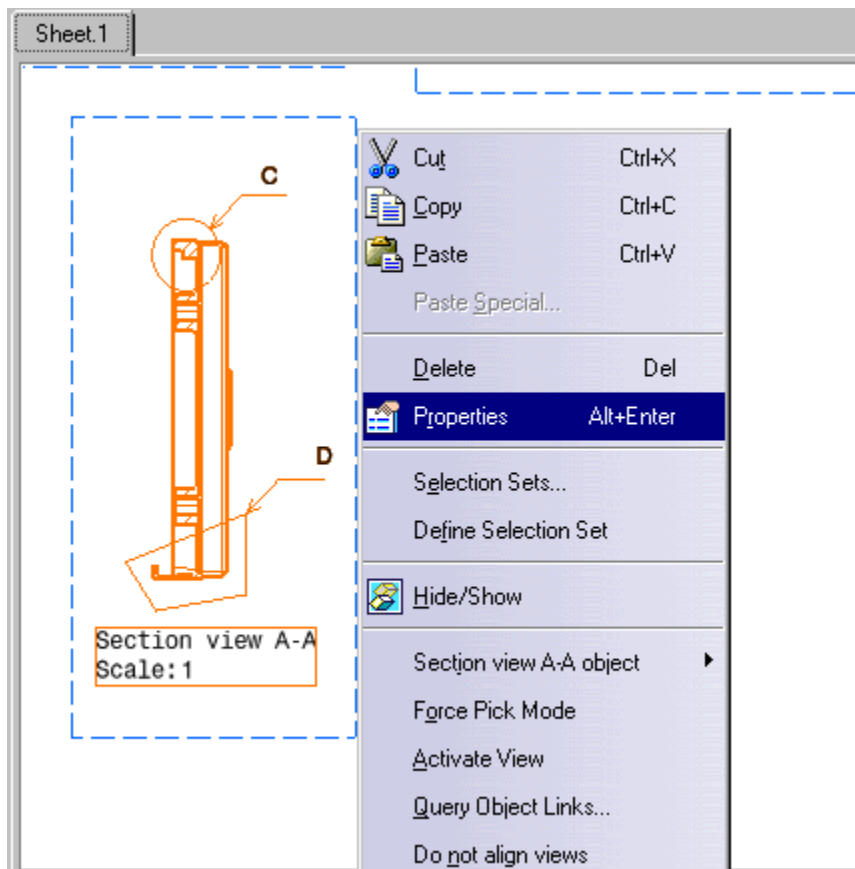


Delete name and scale on front view. Change section views name.

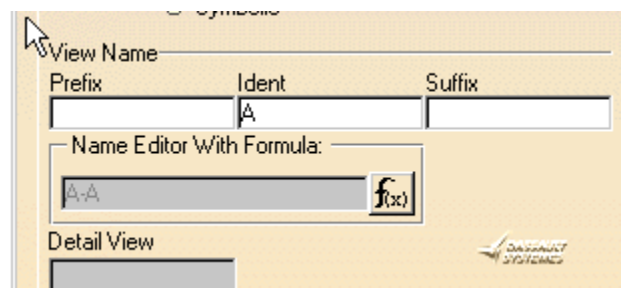
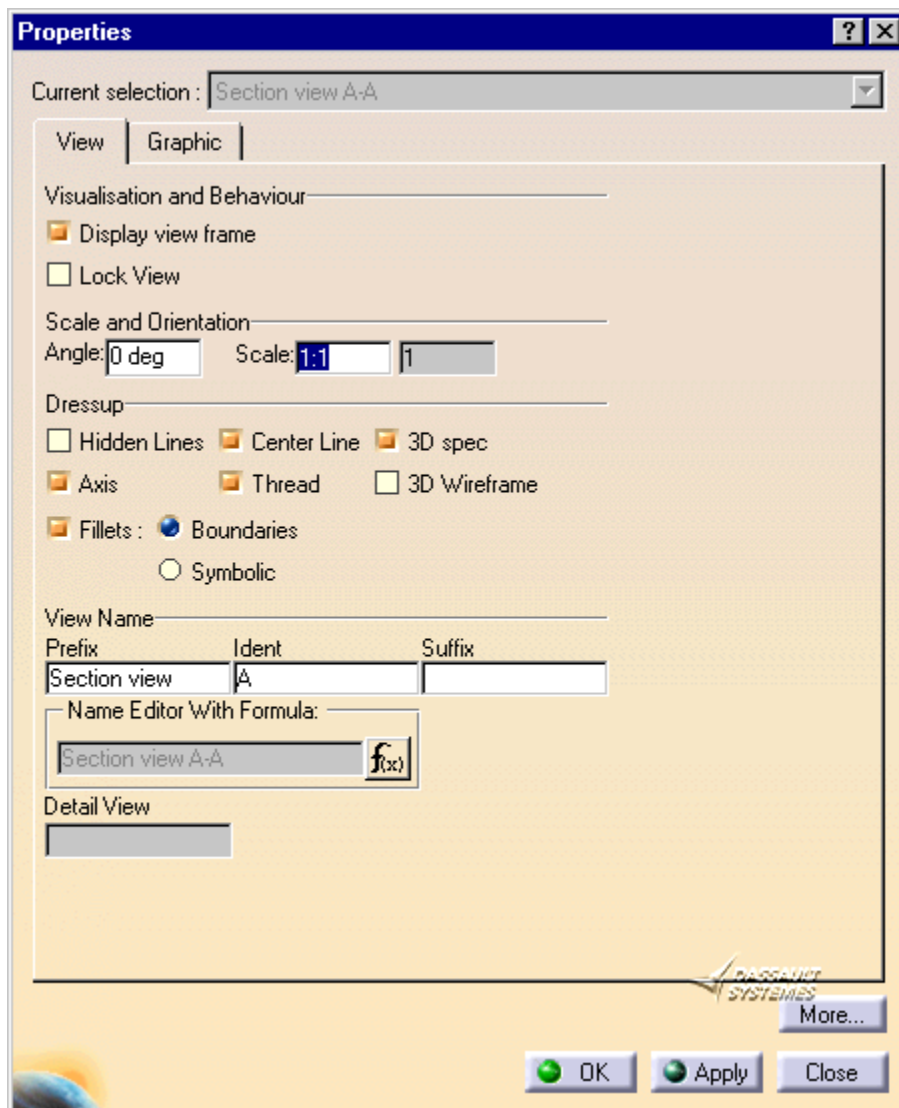
1. Click once on the name of the **front view**, open a **contextual menu** then choose **Delete**



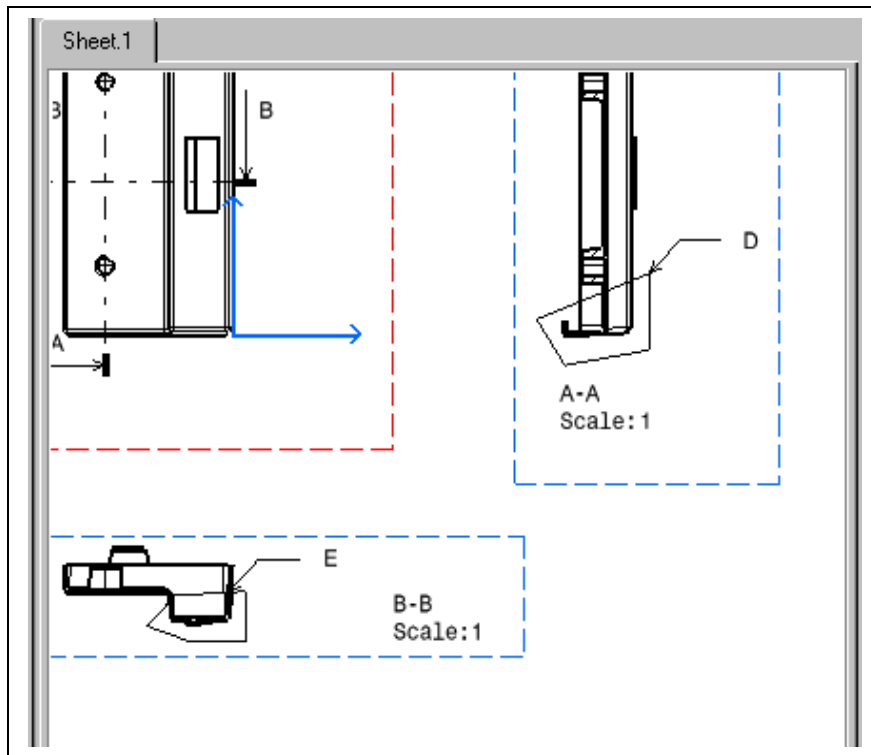
2. Open a contextual menu on the frame of Section view A-A then choose Properties.



3. In the Properties panel select the **Prefix View Name**, **delete** it and click on **OK**.

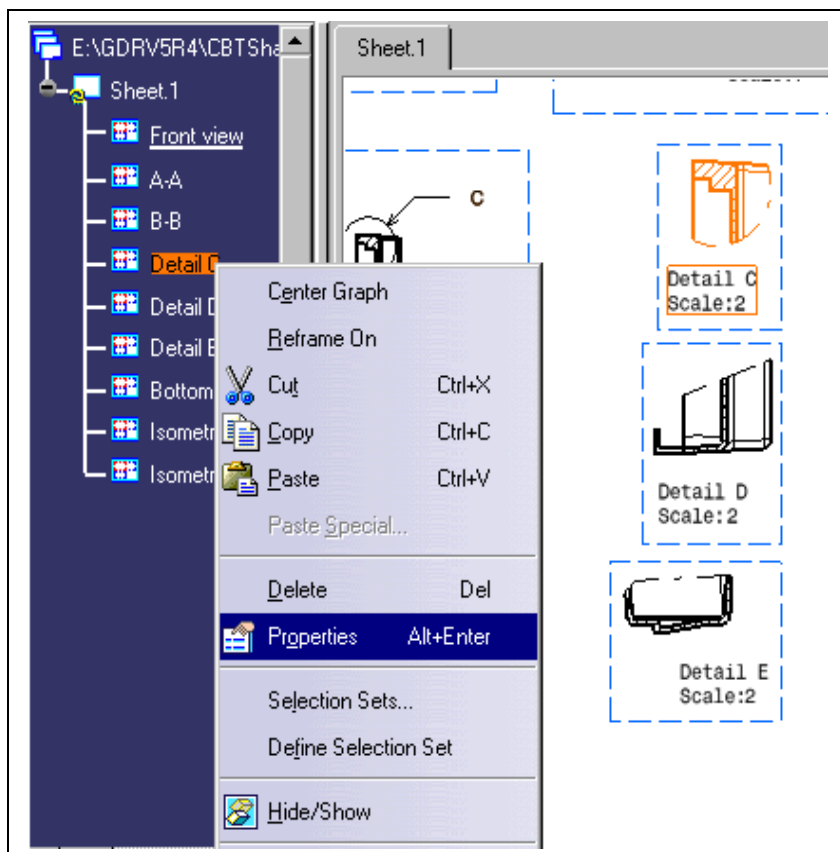


4. Redo the **same operation** with the section view B-B

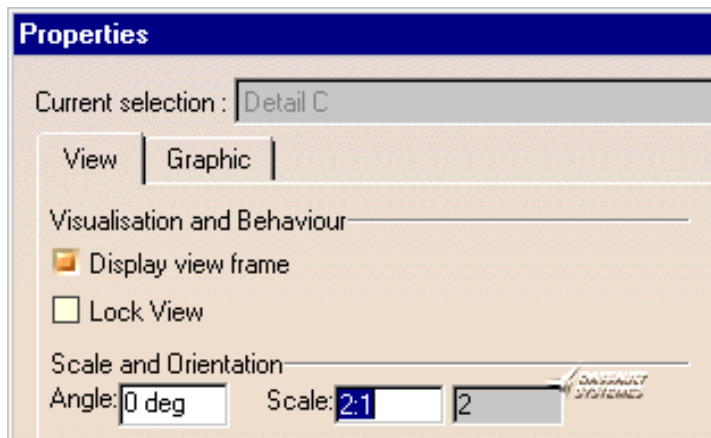


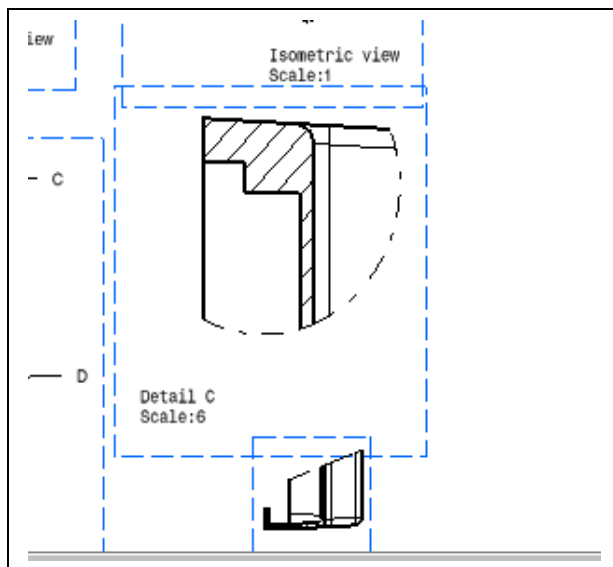
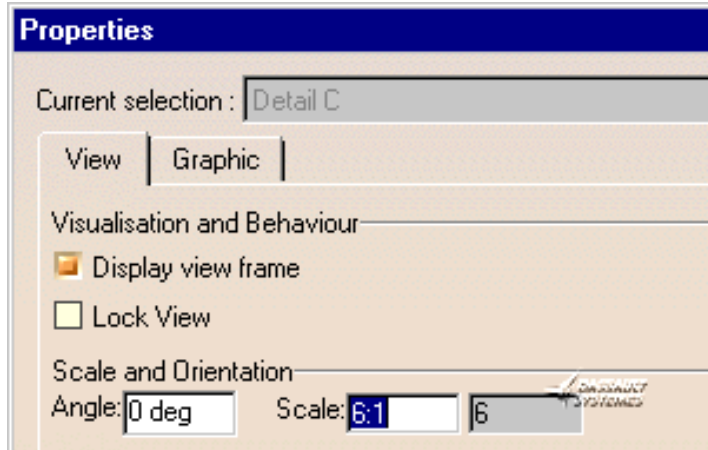
Change scale of all detail views to 6. Change scale of Isometric views to $\frac{1}{2}$.

1. Open a **contextual menu** on **Detail C** in the tree and choose **properties**.

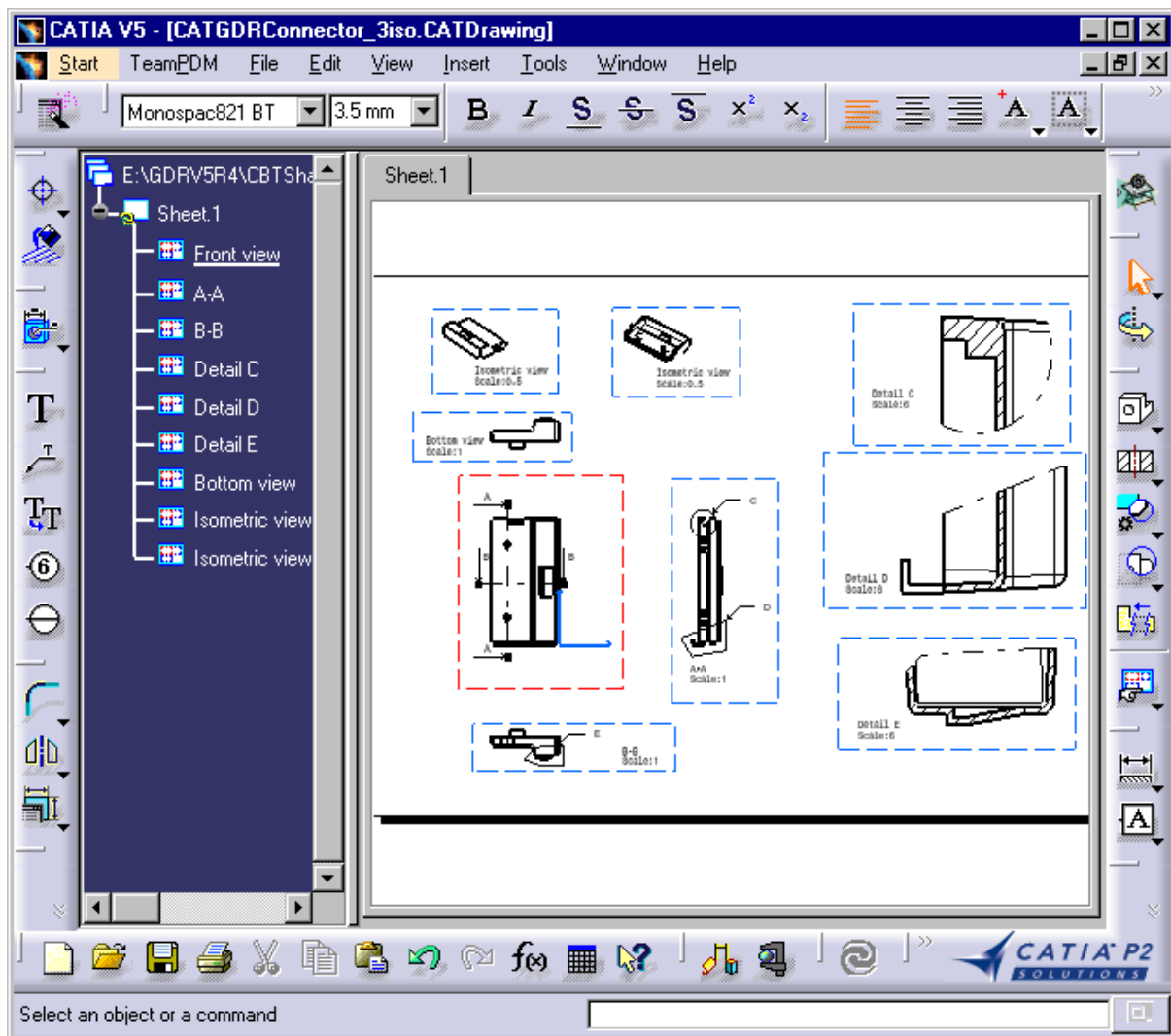


2. In the Properties panel change the scale from 2 to **6** and click on **OK**.



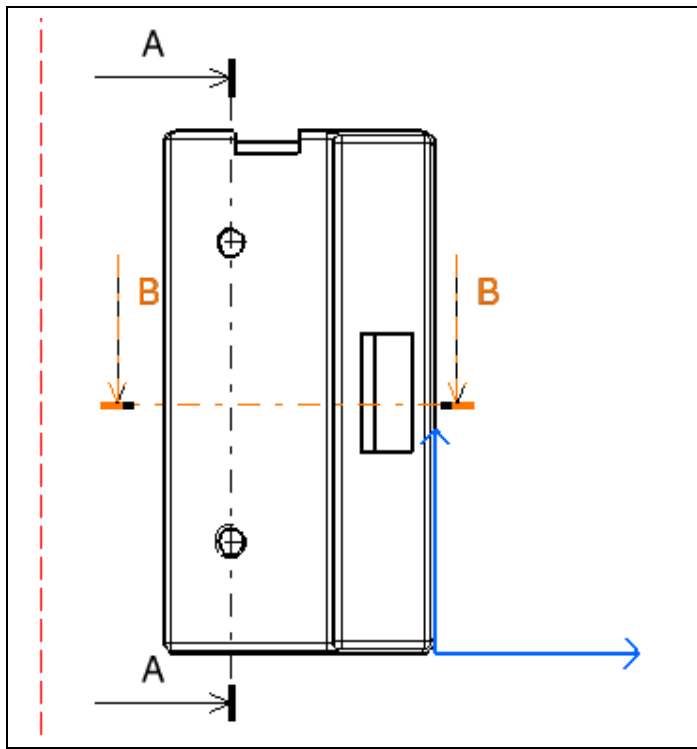


3. Do the same operation with the **other views**.

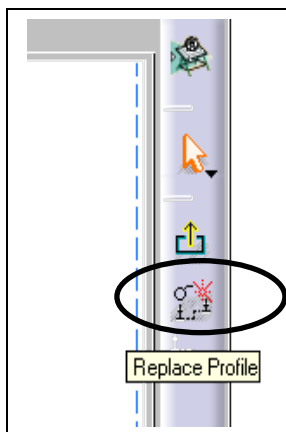


Modify section B-B.

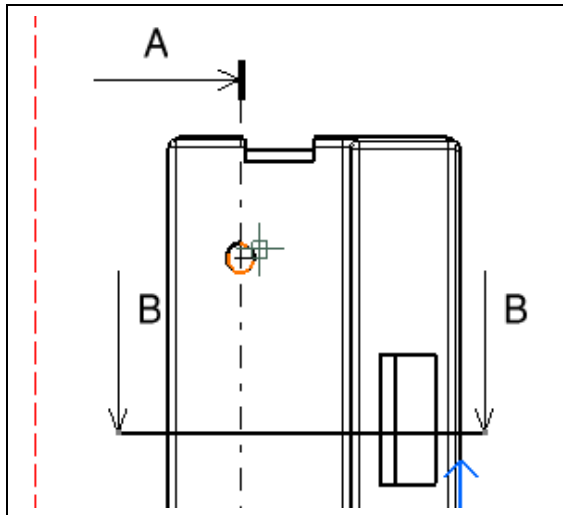
1. Double click on the **section B-B profile** in the front view.



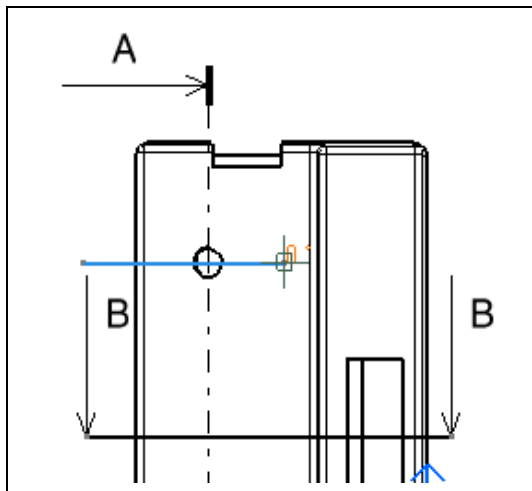
2. Click on the **Replace Profile** icon.



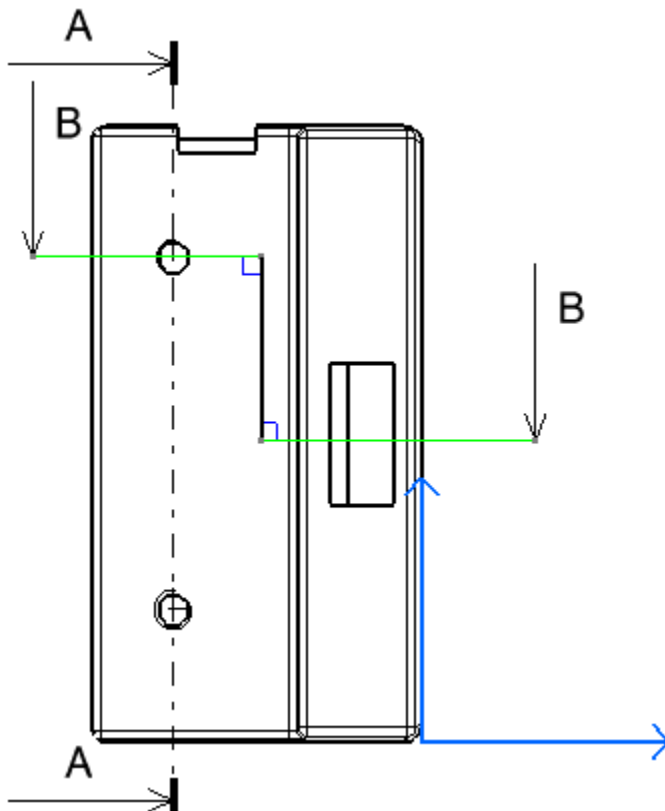
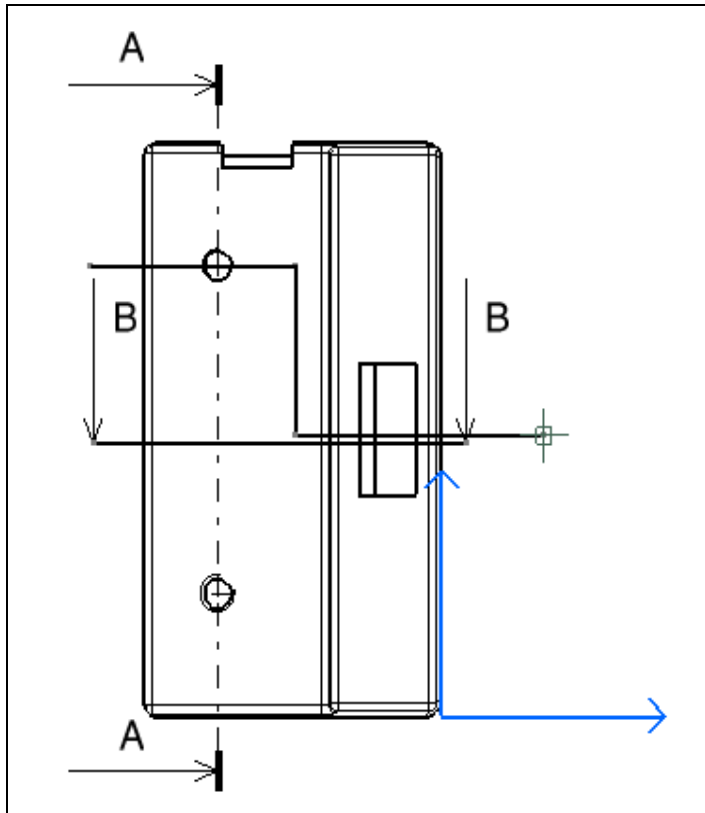
3. Select the **upper hole**.



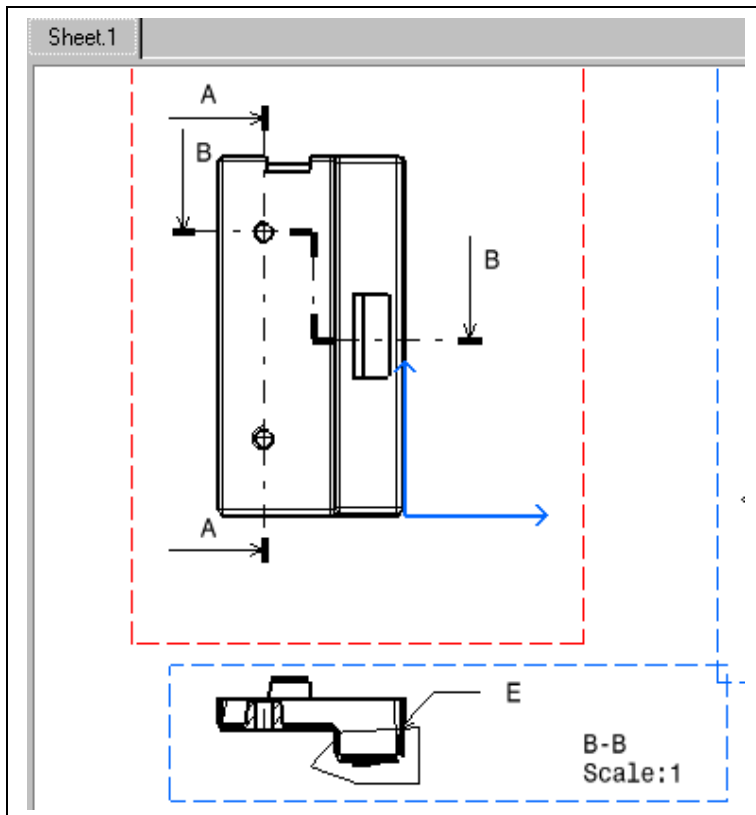
4. Create a first **horizontal segment** of the profile by clicking once on the **right of the hole**.



5. **Continue** the profile as follows and **double click** to end the profile modification.

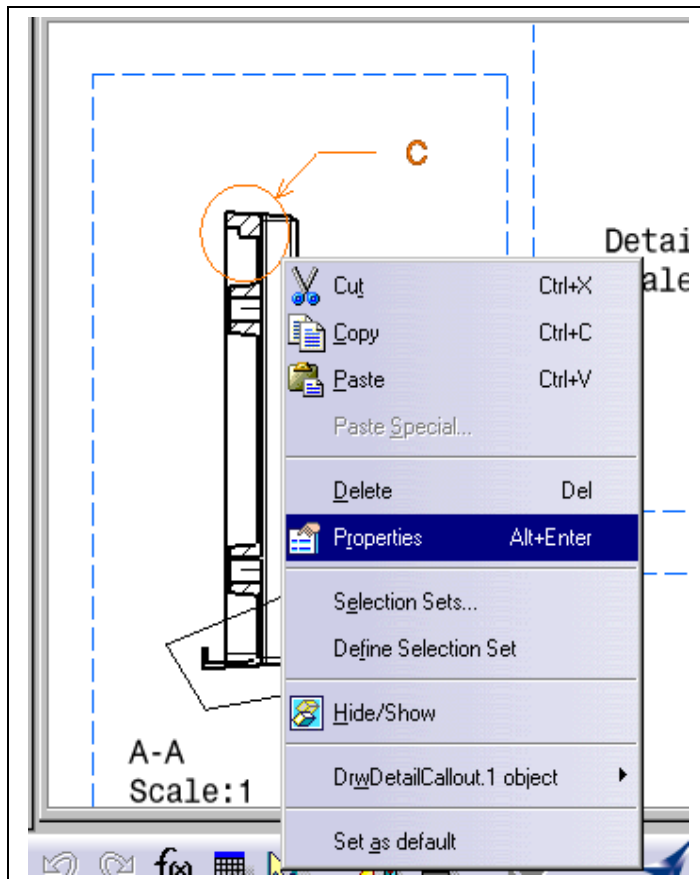


6. Click on the **End Profile Edition** icon.

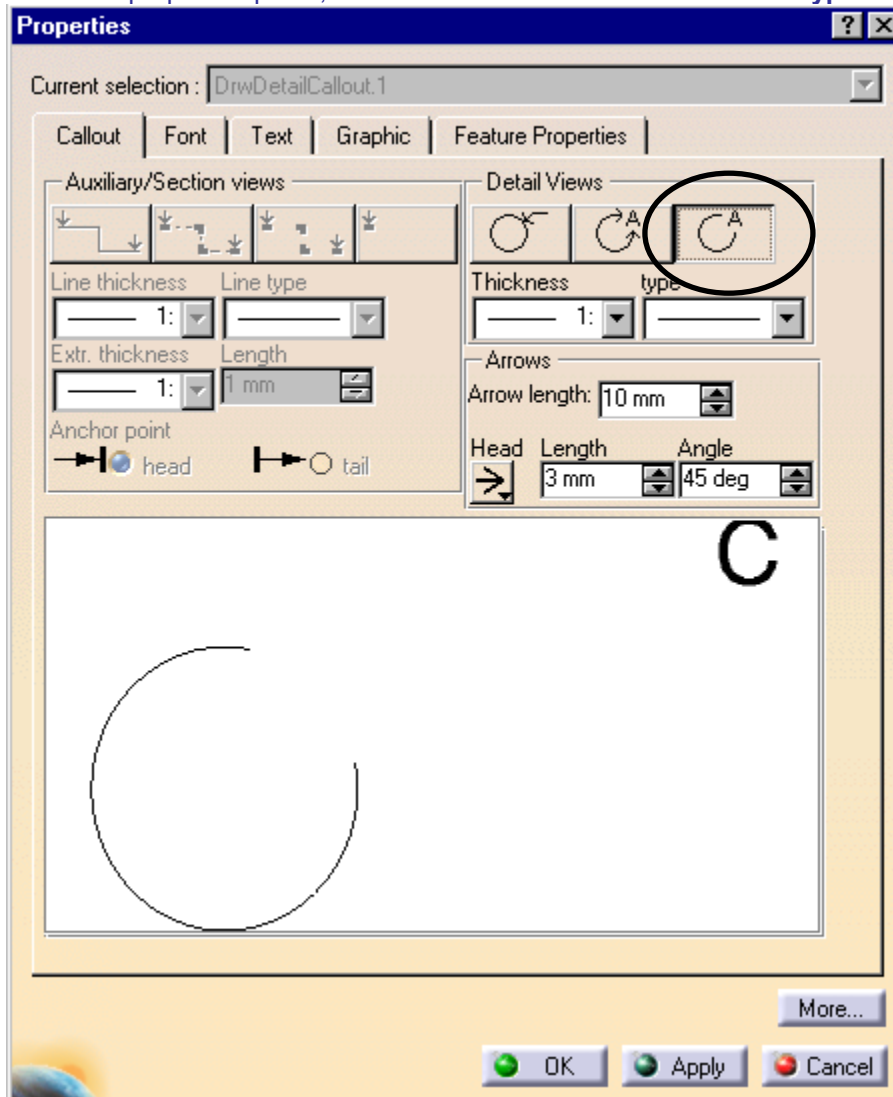


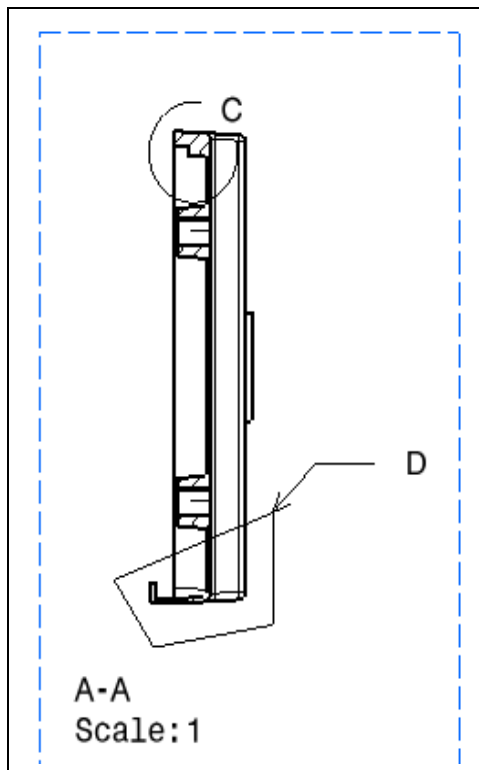
Change the Detail View C callout.

1. Open a **contextual menu** on the **detail C profile** in the section view A-A and choose **properties**.



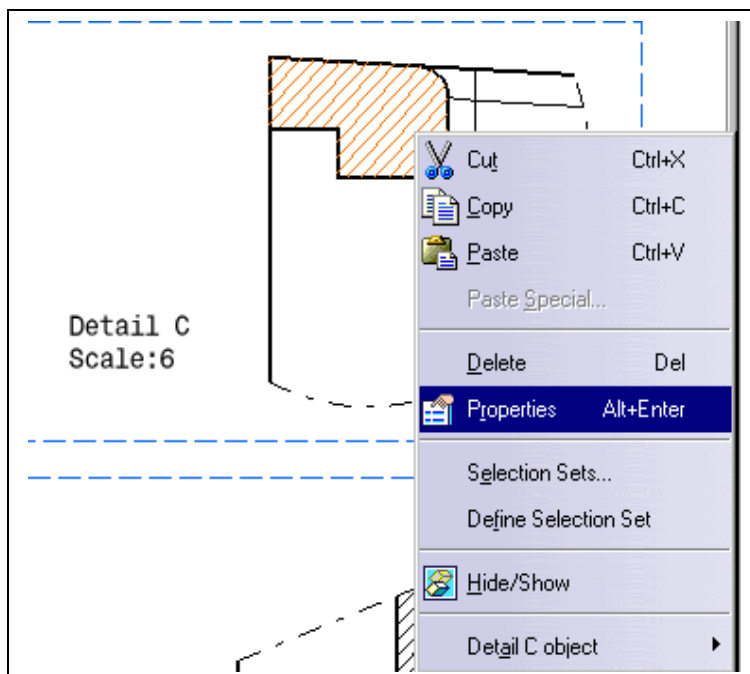
2. In the properties panel, select the **Callout** tab. Choose the **last type** of Detail view as shown.



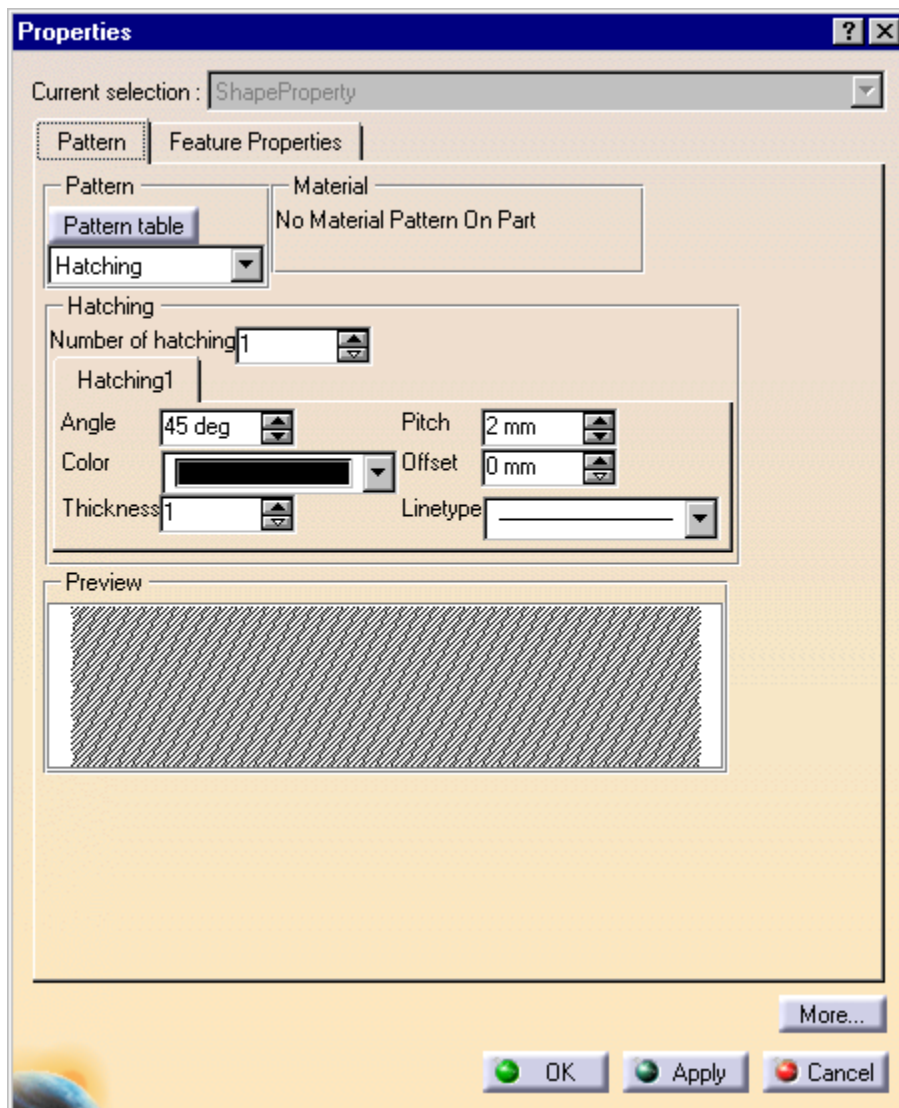


Put a plastic hatching on all sections

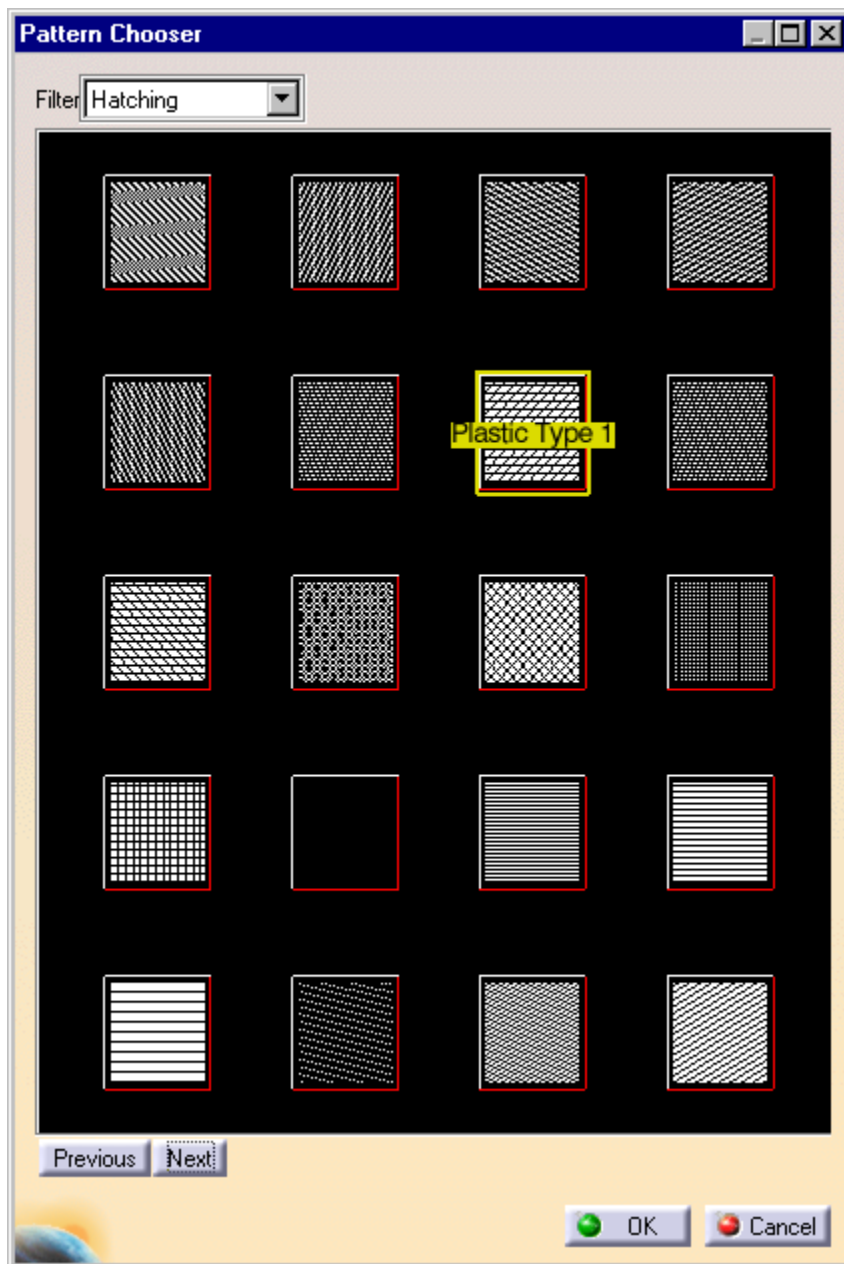
1. Open a contextual menu on the hatching of Detail View C, and choose properties



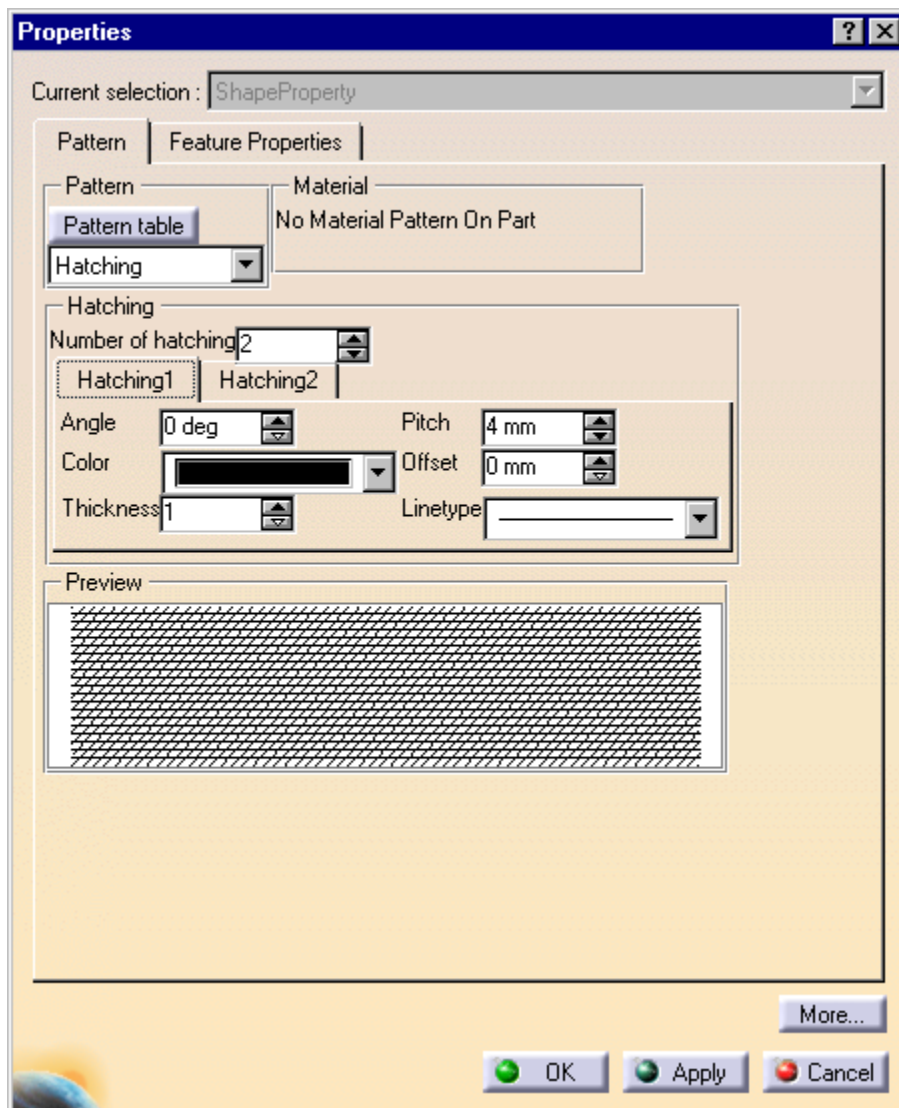
2. On the Properties panel, click on the **Pattern table** button.

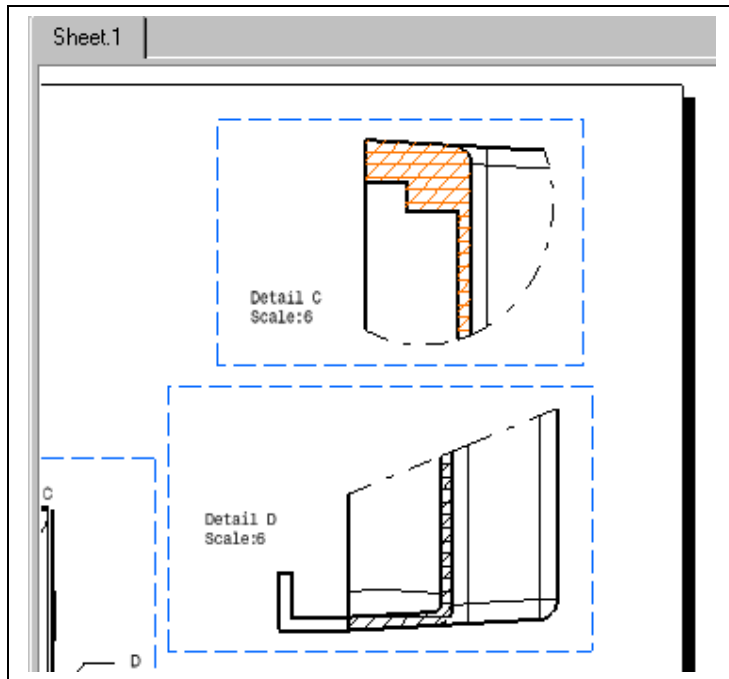


3. In the Pattern Chooser panel select **Plastic Type 1** hatching and click on **OK**.



4. Click on **OK** in the Properties panel.



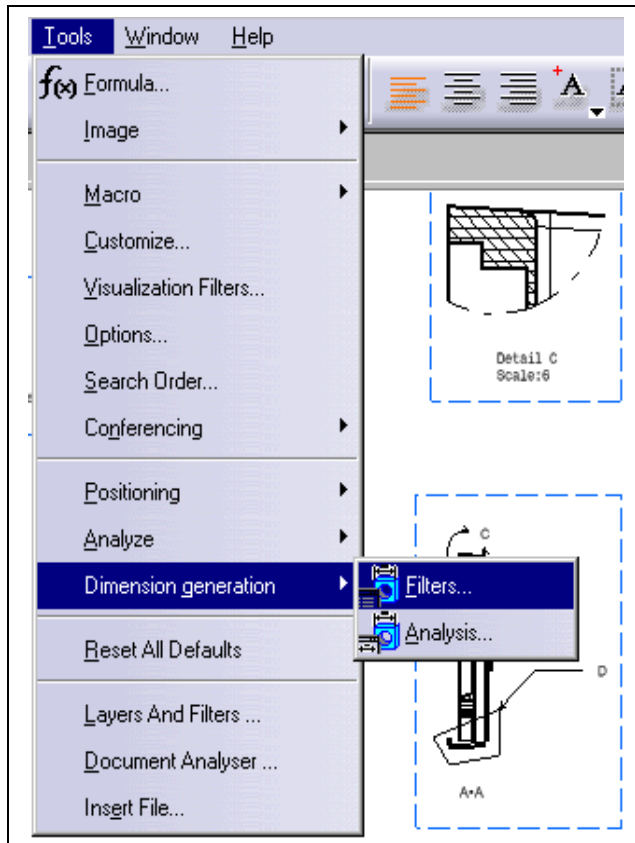


Rearrange all views.

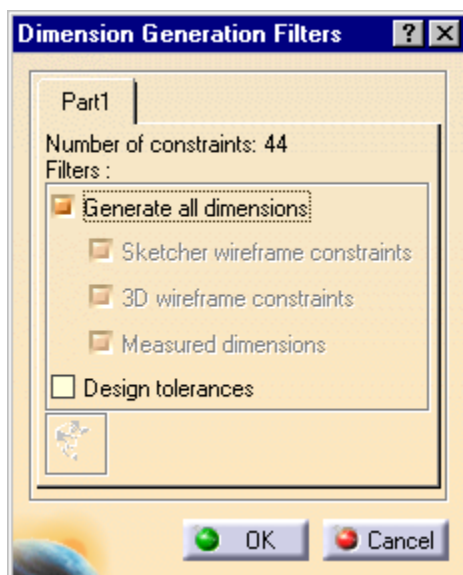
Step 4 - Dimensioning & Tolerancing

Generate the 3D constraints in step by step

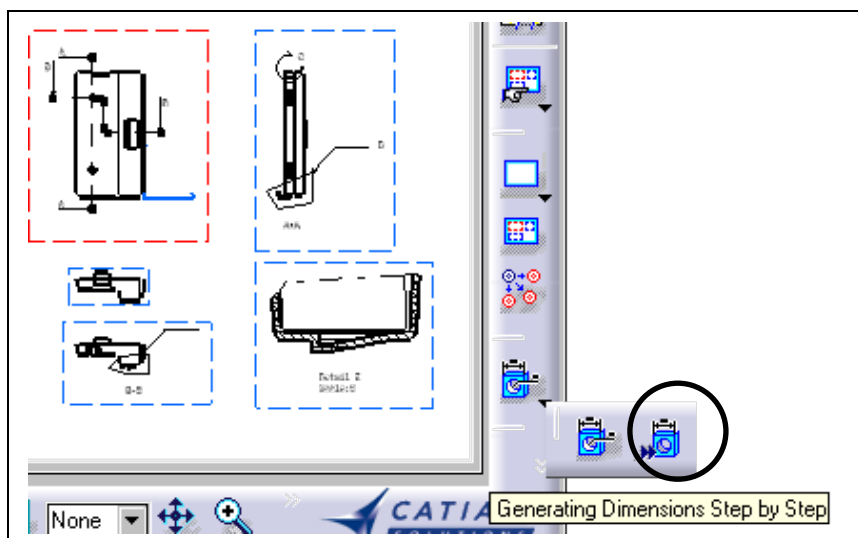
1. Select Tools → Dimension generation → Filters.



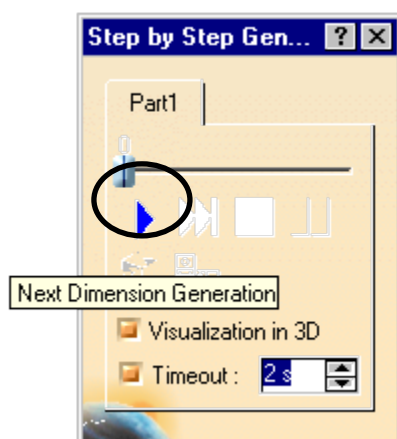
2. Check the Generate all dimensions option.



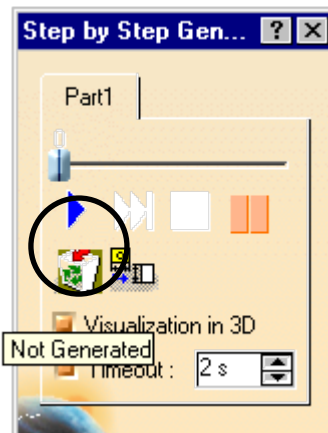
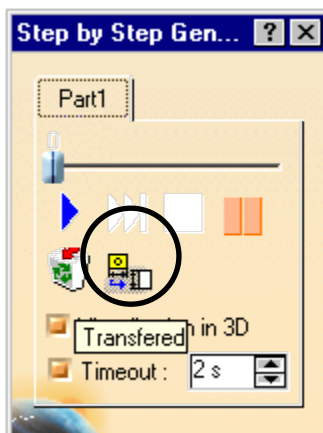
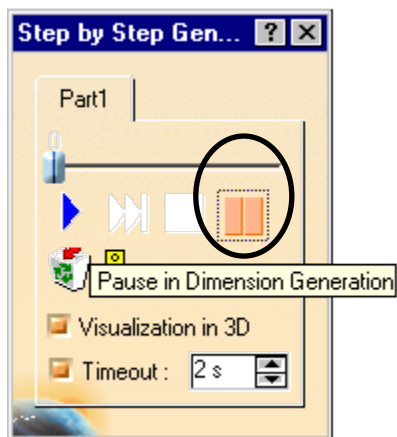
3. Click on the Generating Dimensions Step by Step icon



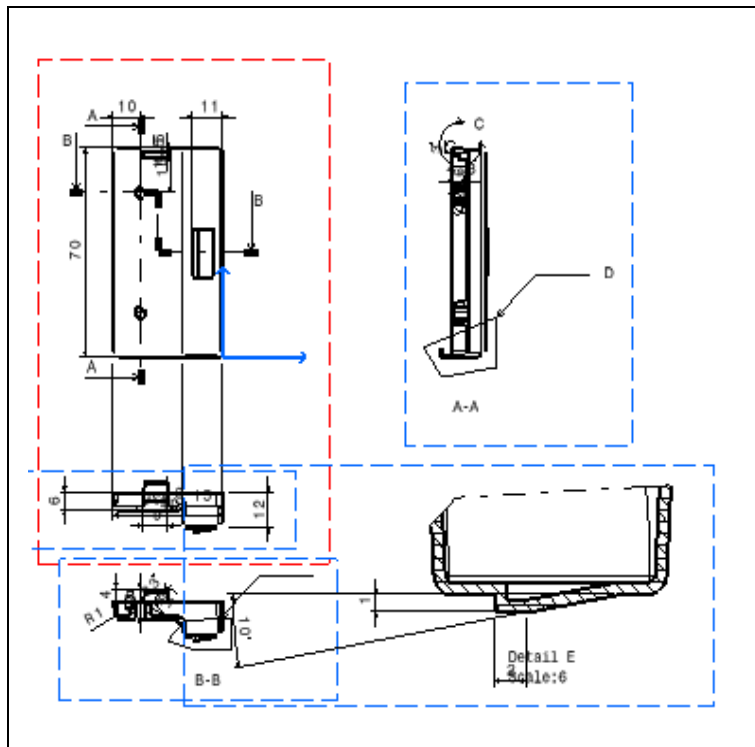
4. Click on the **blue arrow** to begin the dimension generation.



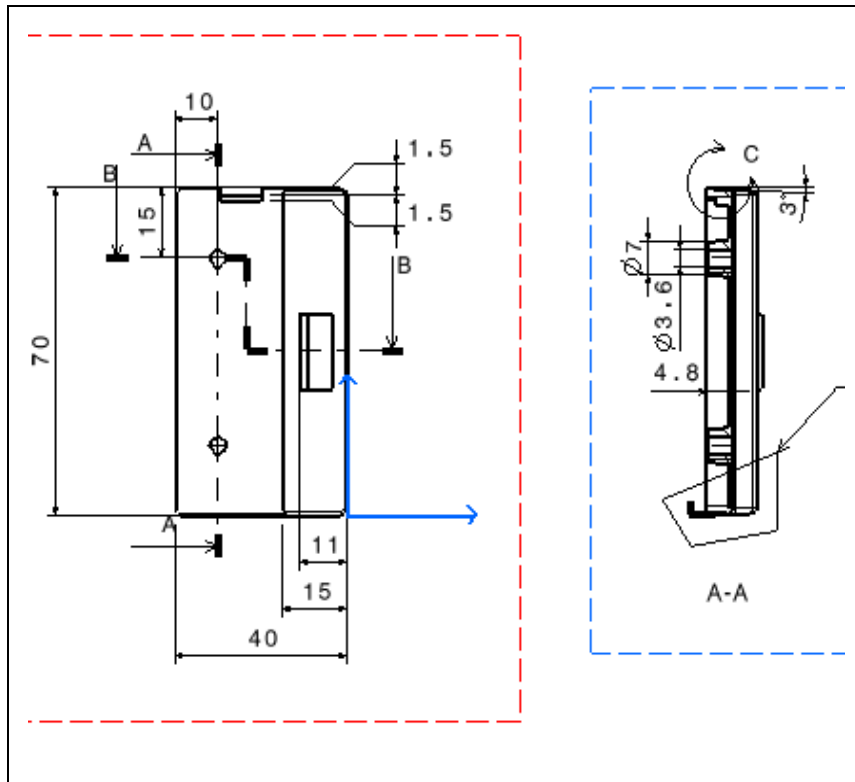
5. Click on **Pause** (the green double bar) to stop the generation each time you want to **transfer** the dimension to another view or **not generate** the dimension.



6. **Continue** the dimension generation until the end.

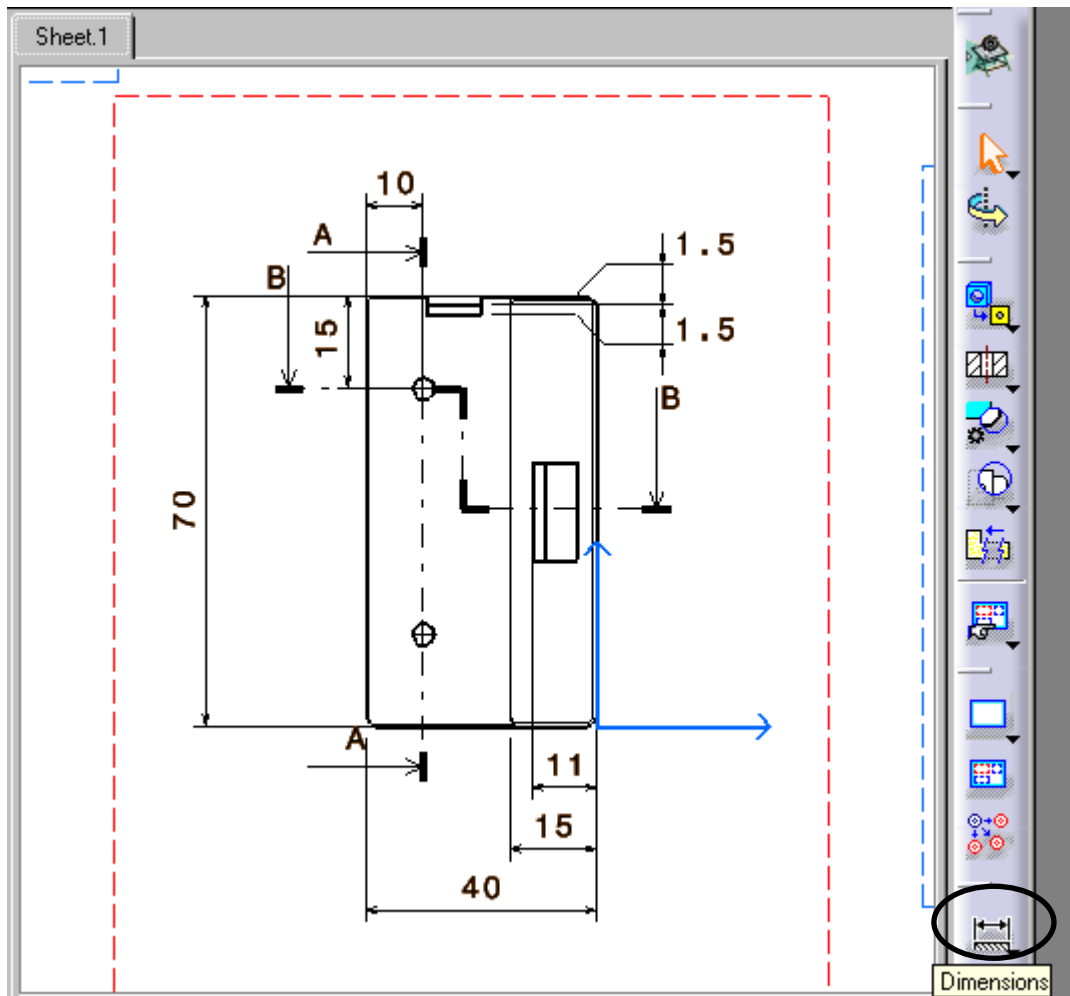


7. **Reposition** the dimensions to obtain what is shown in the course.

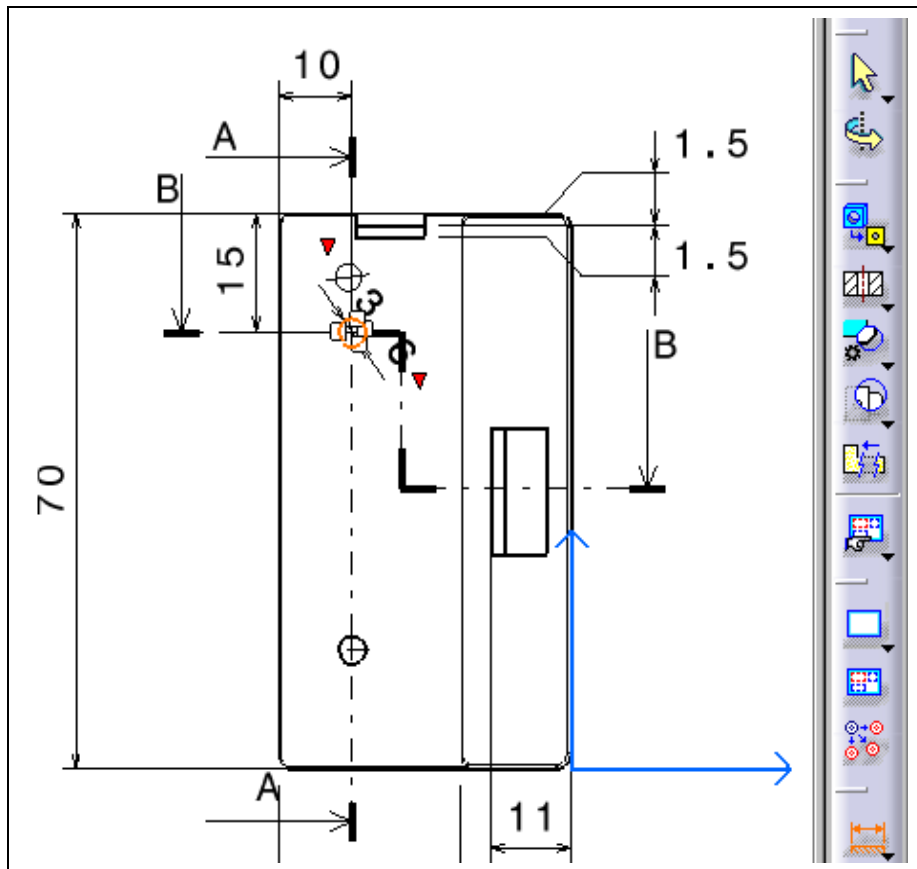


Manually dimension the views

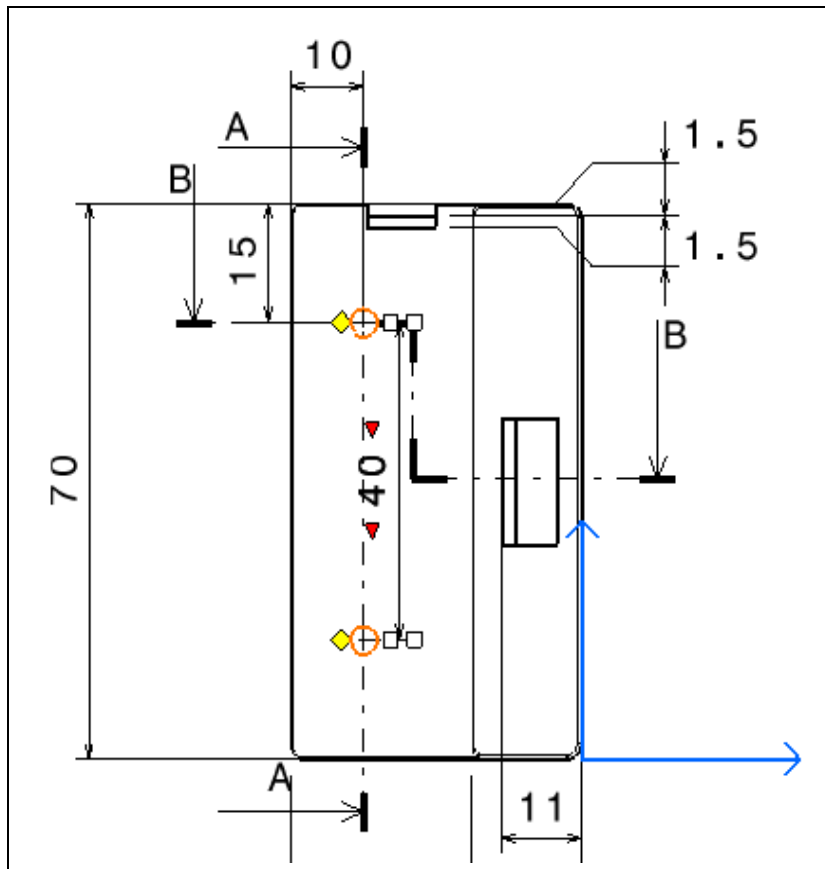
1. Click on the **Quick Dimension** icon.



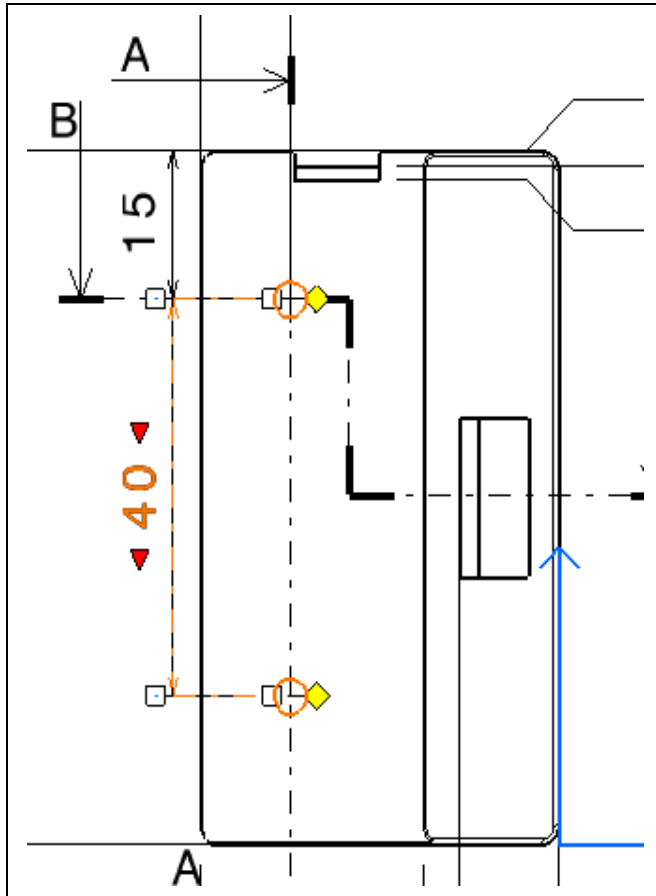
2. In the front view, click on the **upper hole**



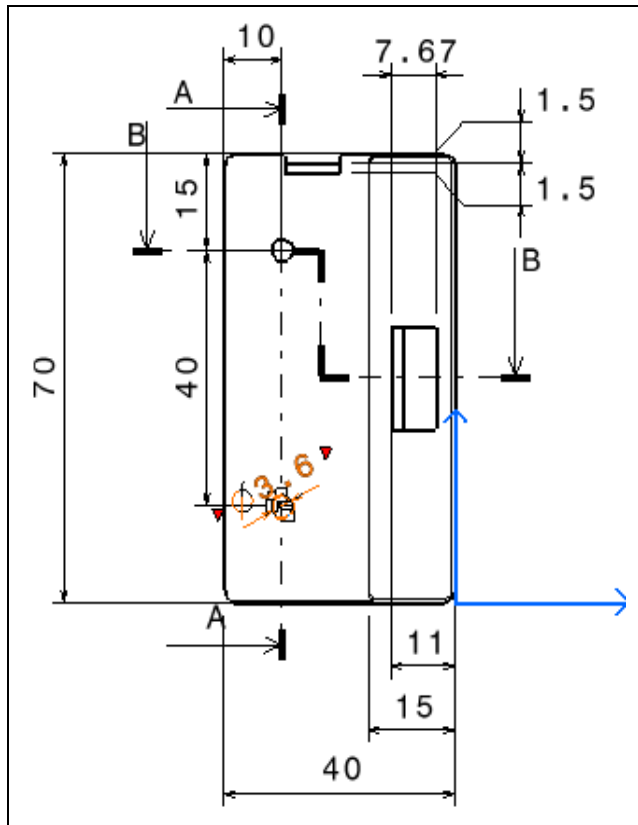
3. Click on the **lower hole**.



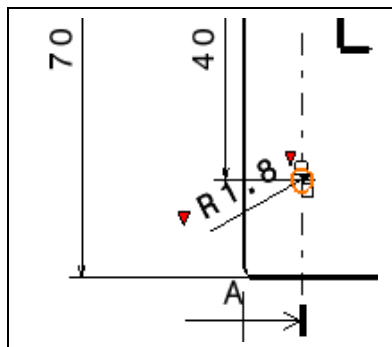
4. **Drag and drop** the created dimension **outside the geometry**, then **click** once to end the dimension creation.



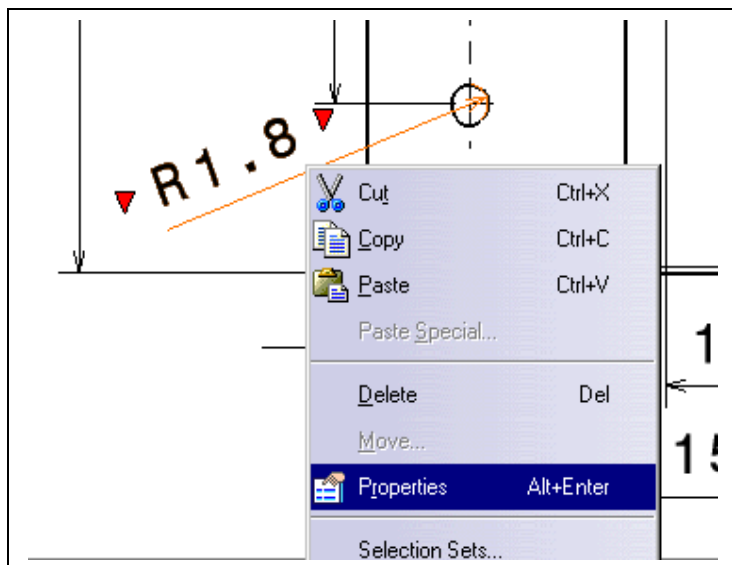
5. Click on the **Radius Dimension**  icon, then select the **lower hole** of the front view.



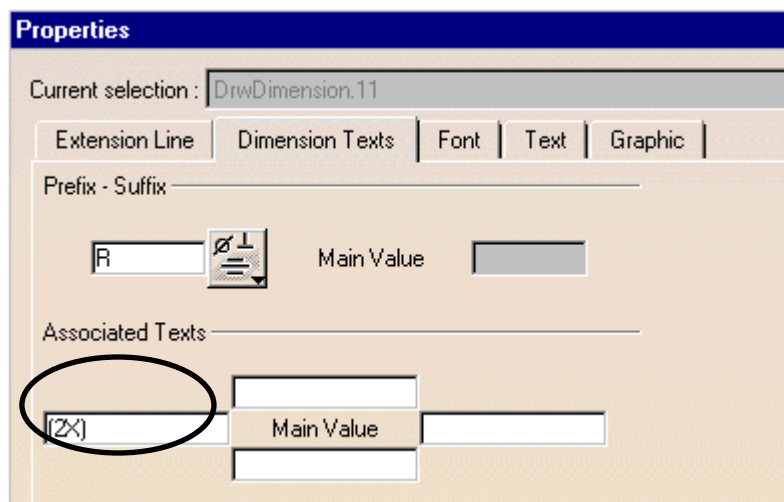
6. Click once to end the dimension creation.



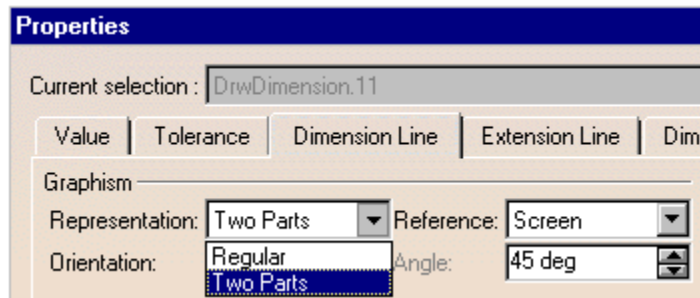
7. Select the **created radius** and open its **properties** panel with a contextual menu.



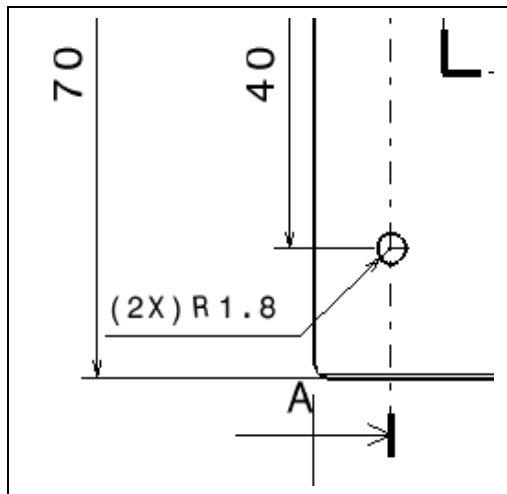
8. In the **Dimension Texts** tab key in “(2X)” in the **before** value cell.



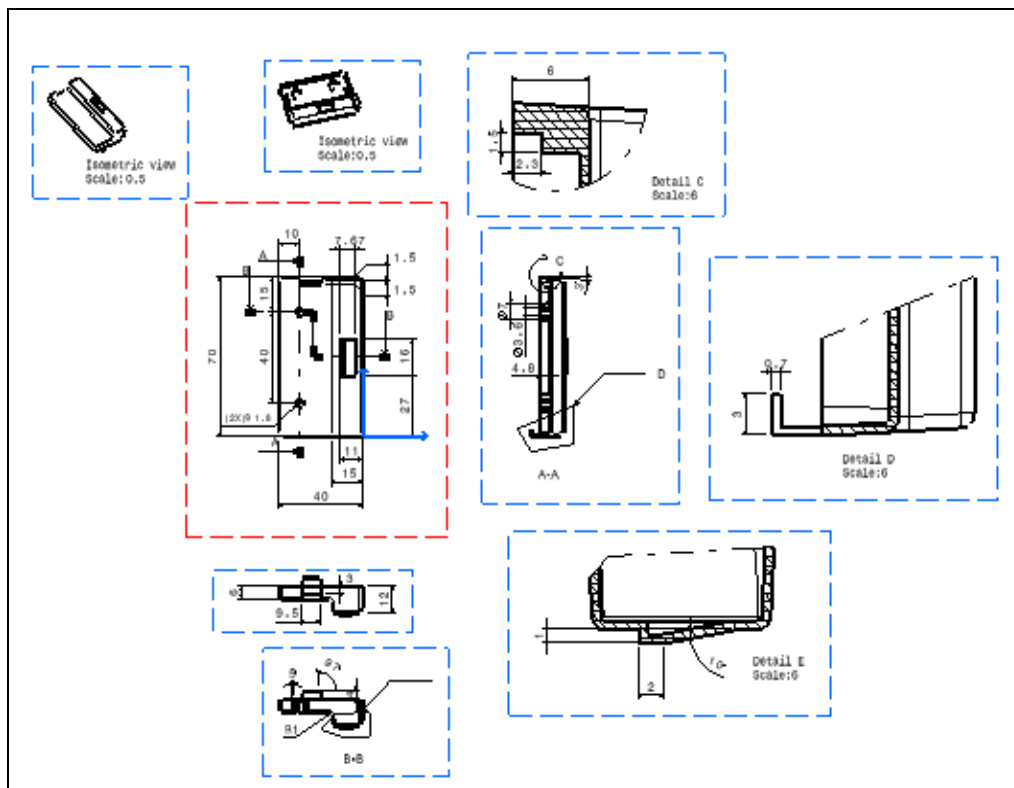
9. In the **Dimension Line** tab choose **Two Parts** as Representation for the dimension. Click on **OK**.



10. **Reposition** the dimension.

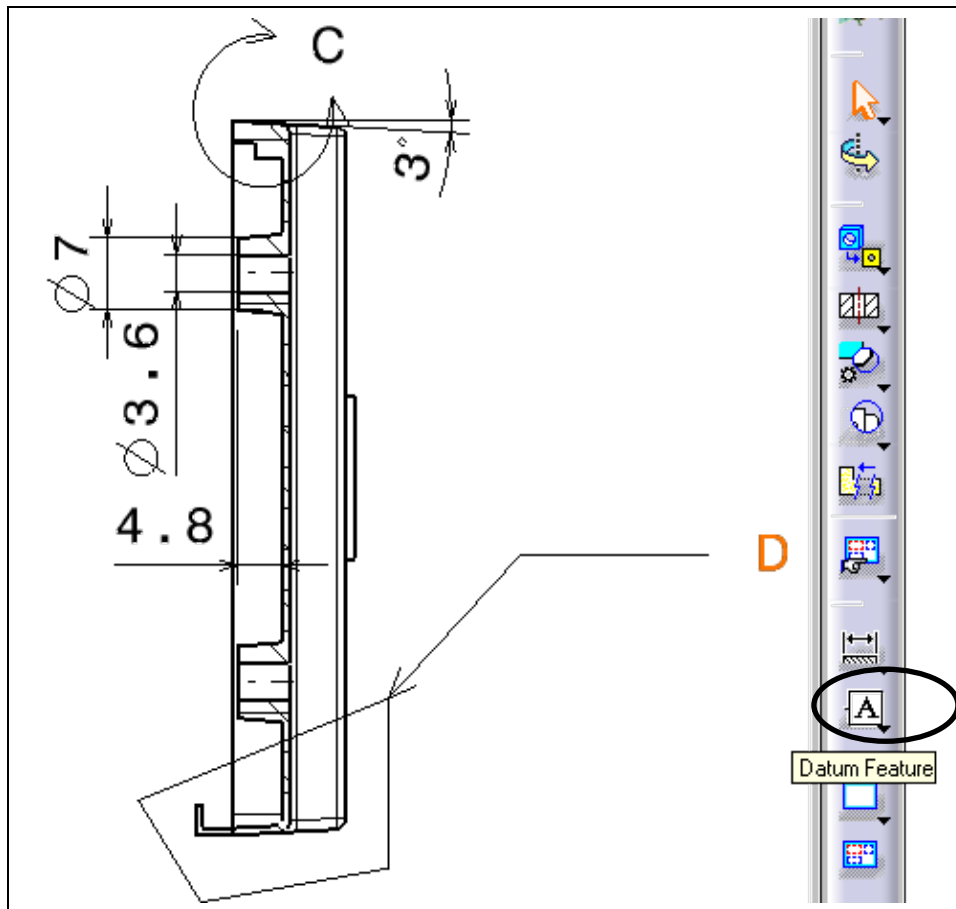


11. Continue to define the **other dimensions**.

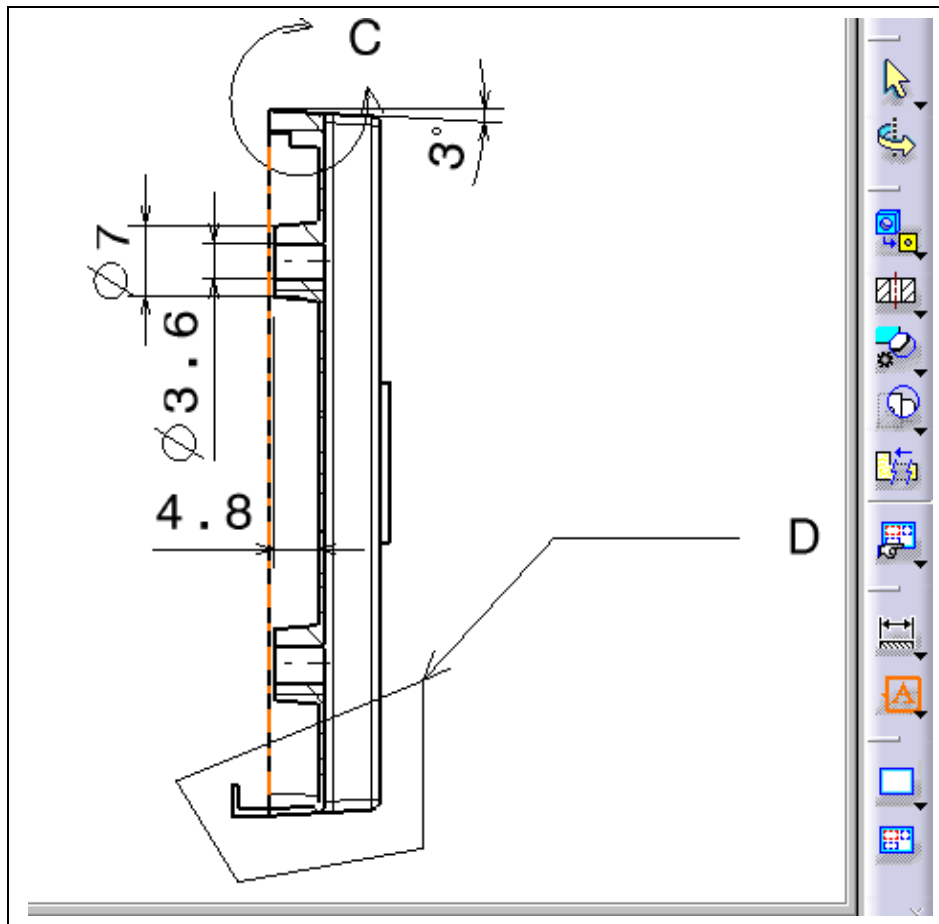


Add datum and Geometric tolerances

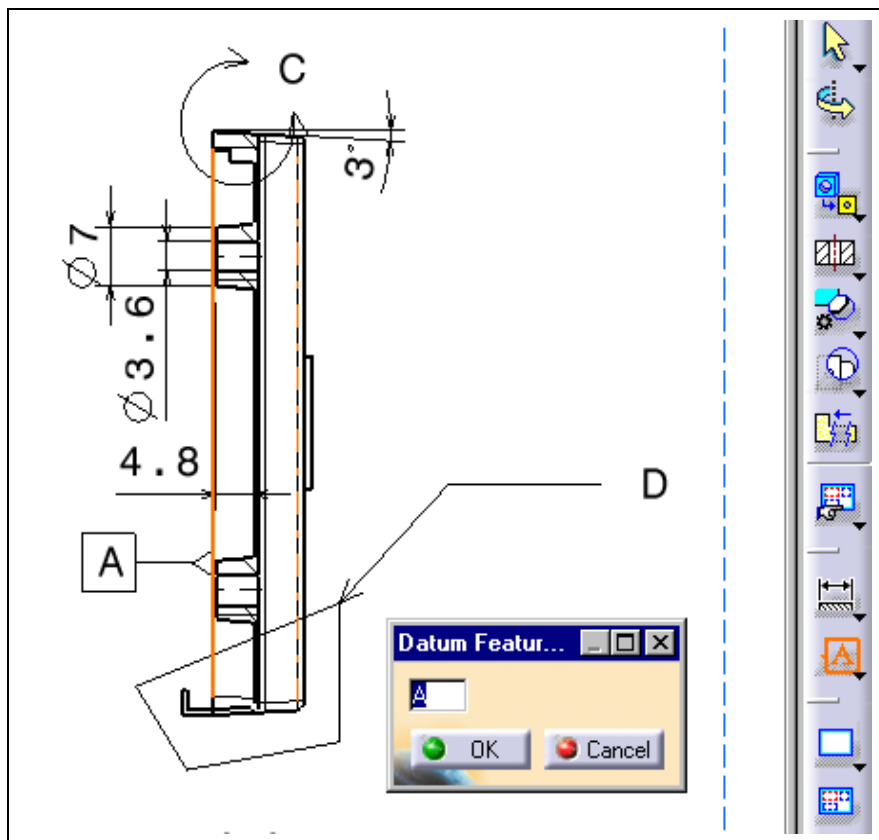
1. Click on the **Datum** icon.



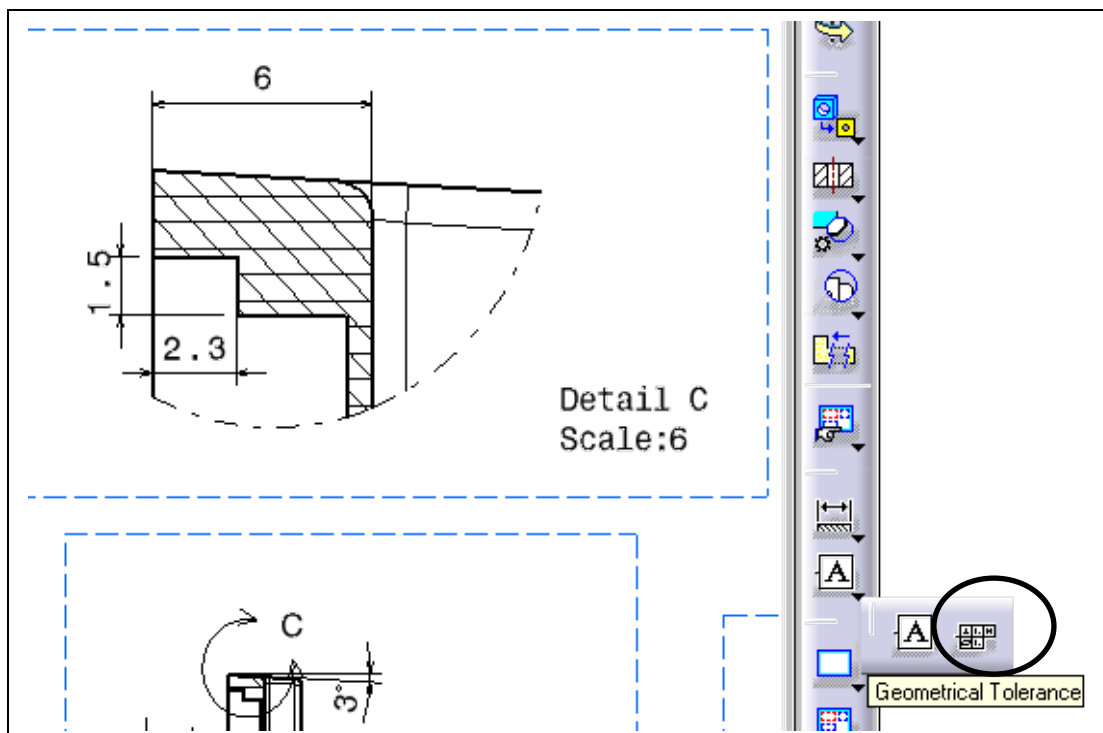
2. Select the **left edge** of the connector in the section view A-A.



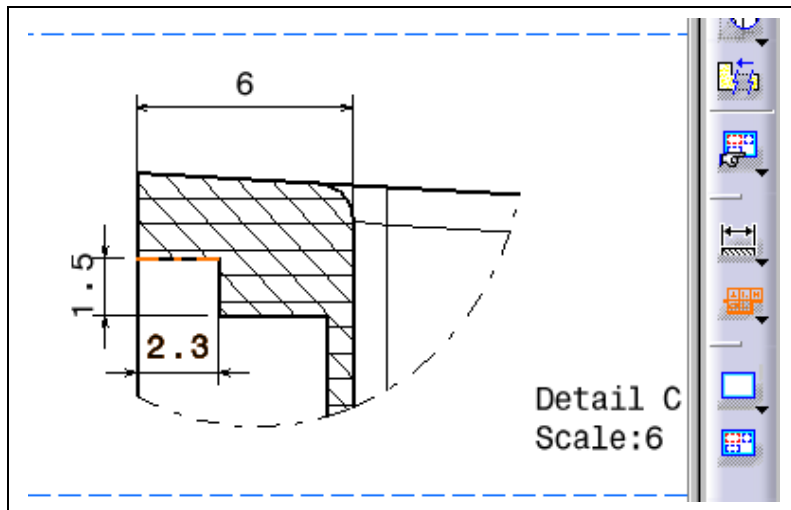
3. Position the Datum **outside the geometry**, then click on **OK** to accept the Datum feature.



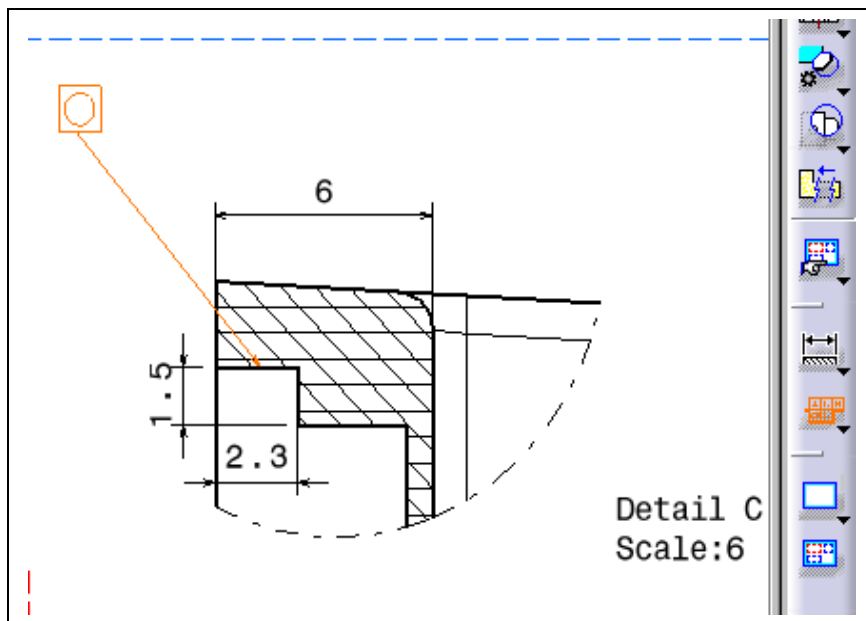
4. Click on the Geometrical Tolerance icon.



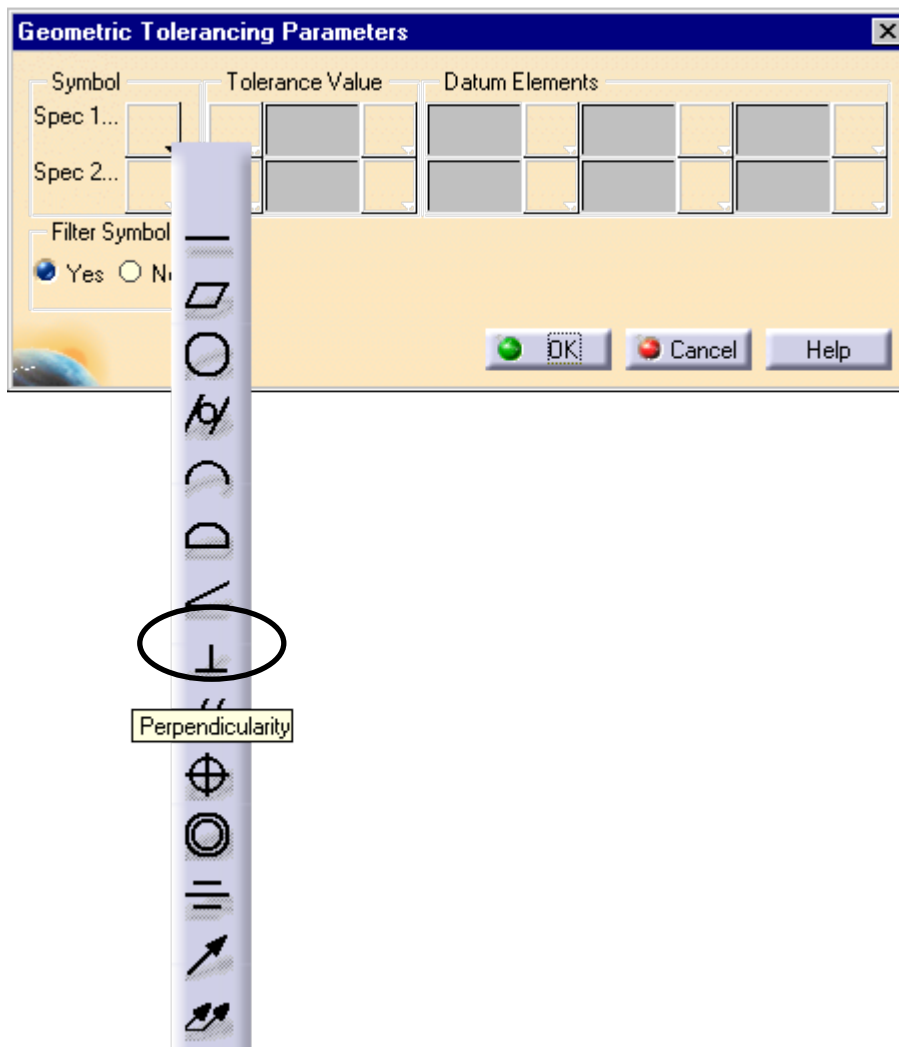
5. Select the **edge** in the Detail C as shown below.



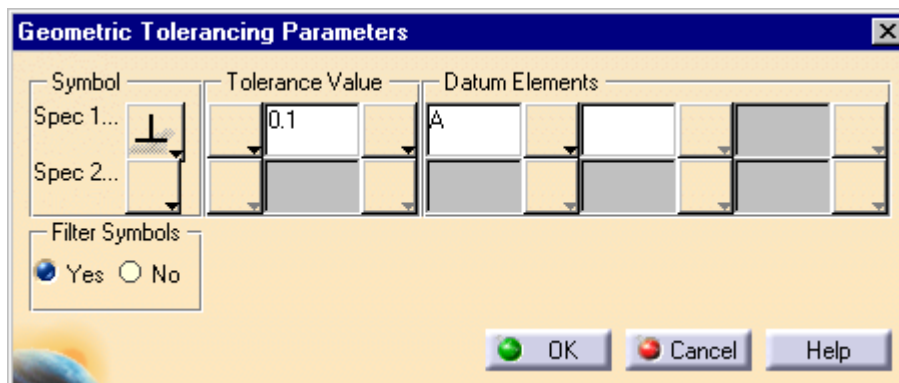
6. Position the **Geometrical Tolerance** symbol outside the geometry, then **click** once.



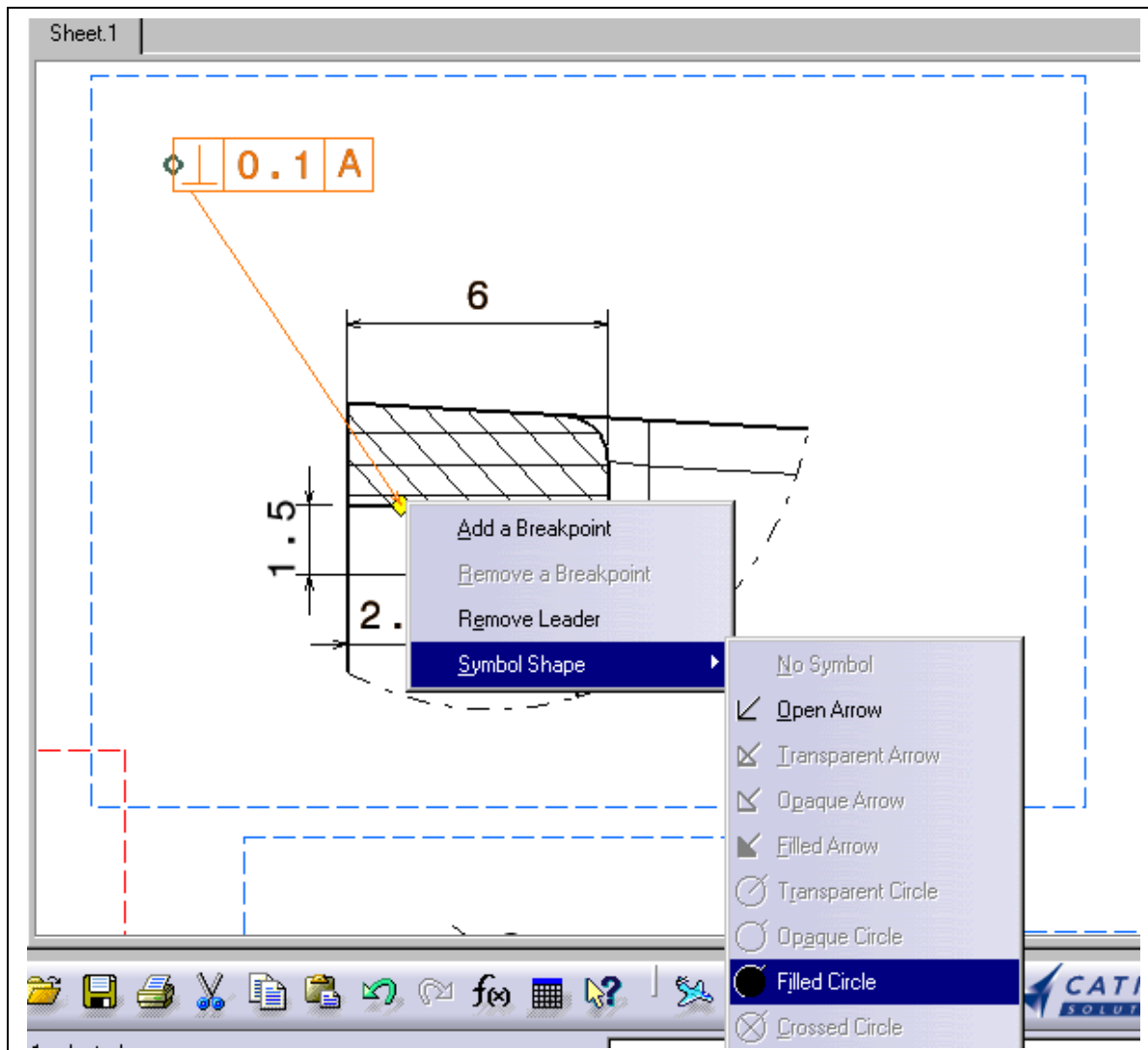
7. In the **Spec1** symbol list, choose the **Perpendicularity** symbol.



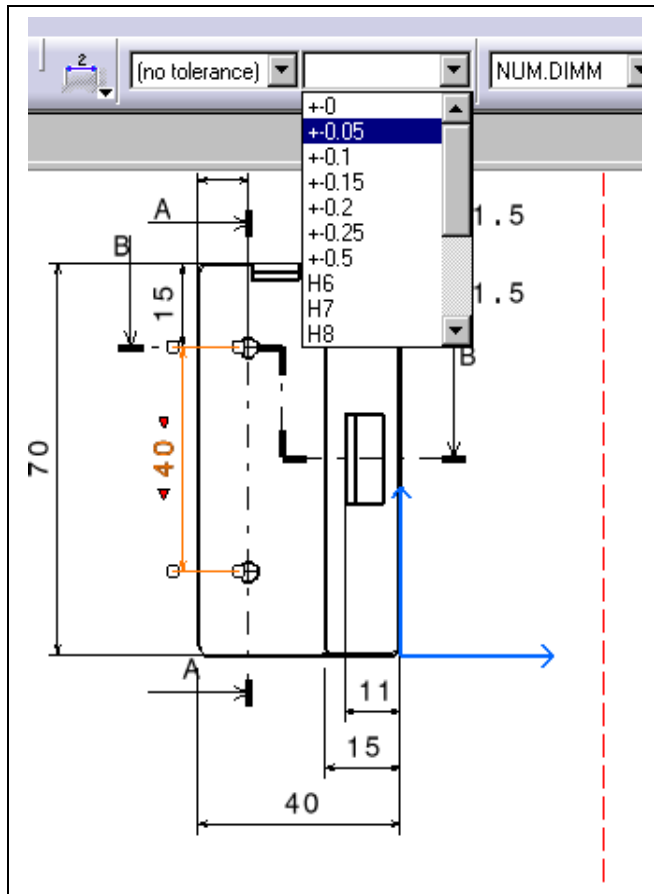
8. Complete the **Tolerance Value** and **Datum Elements** fields as follows. Click on **OK** to accept.



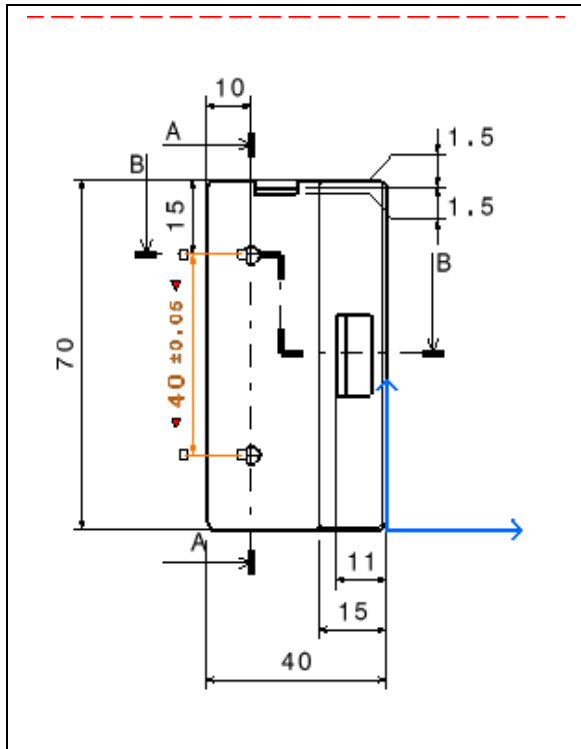
9. Select the **arrow** of the geometrical tolerance symbol then open a **contextual menu**; choose **Filled Circle** as Symbol Shape.

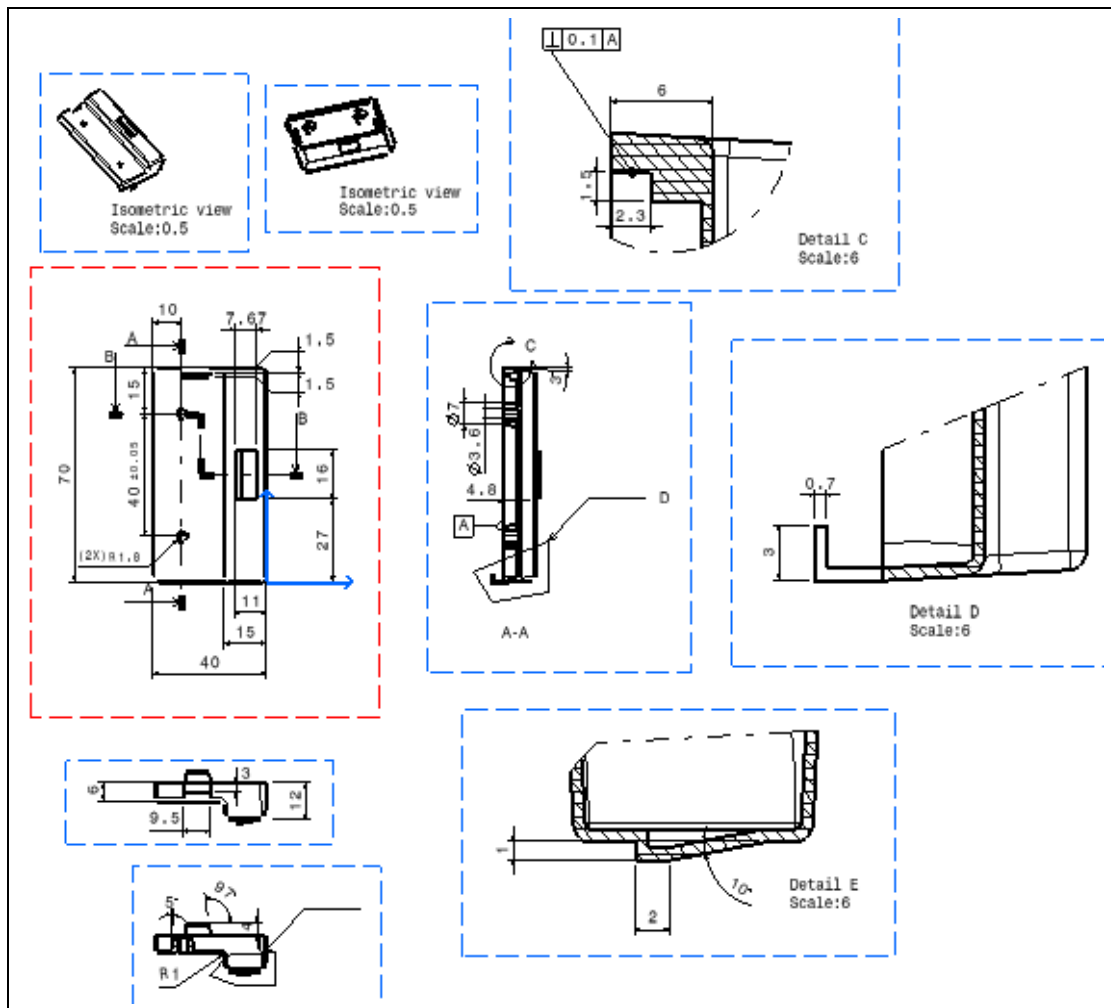


10. Select the **dimension between the two holes** of the front view then choose **+/- 0.05** as tolerance value in the Dimension Properties toolbar.



11. **Click** once to end the creation of the tolerance value.

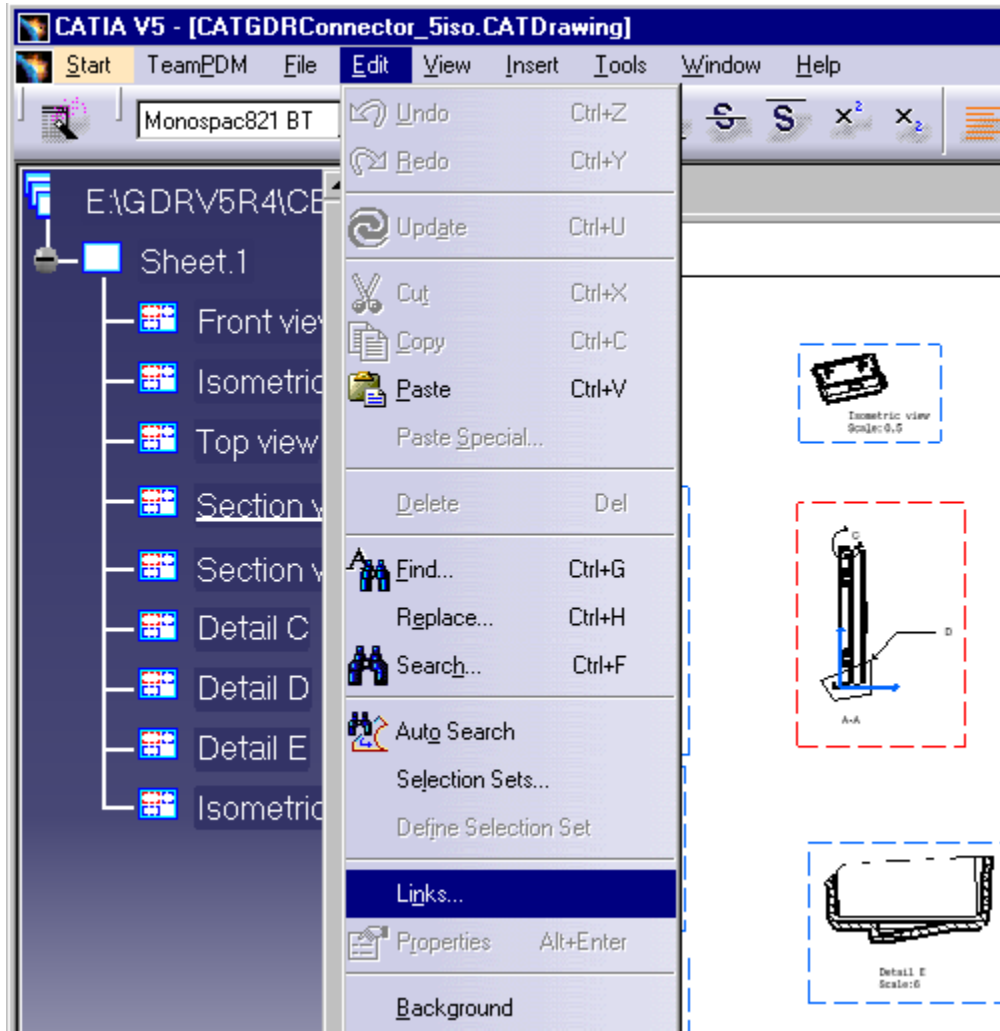




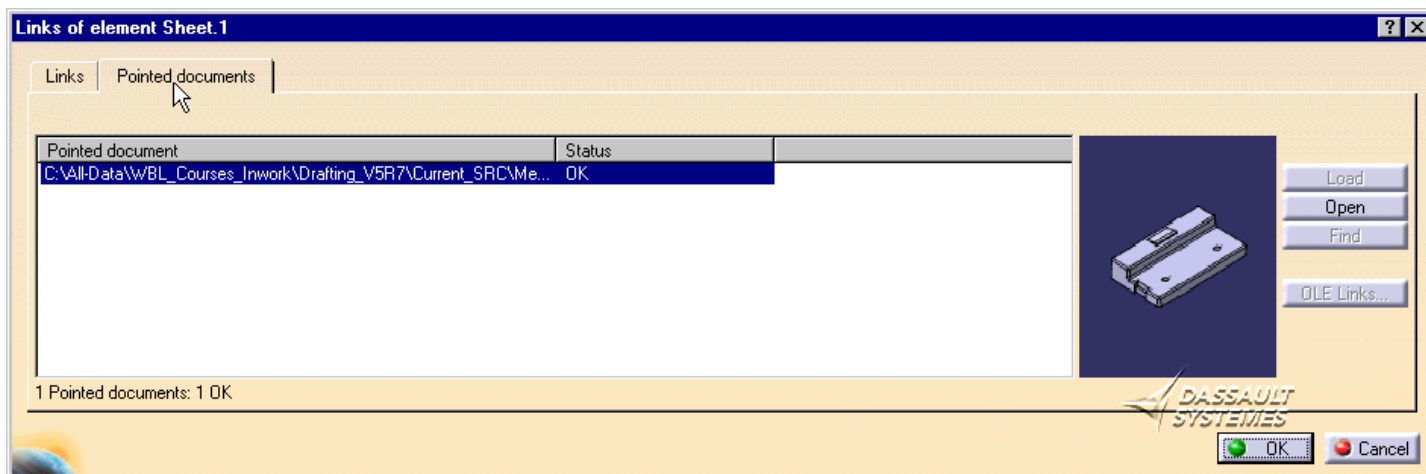
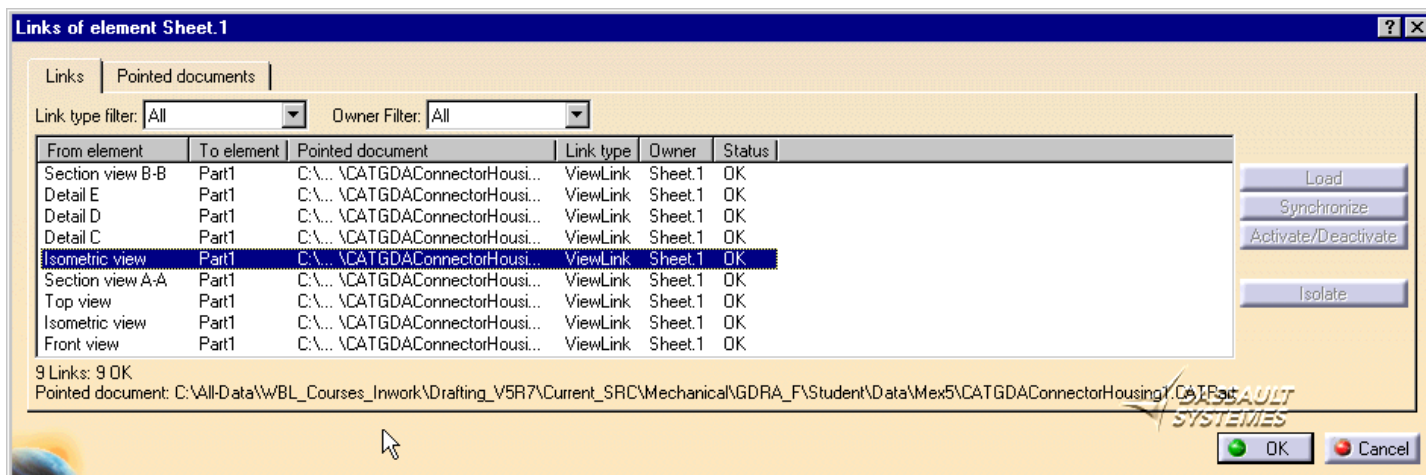
Step 5 - Finalizing the drawing

Change the source part

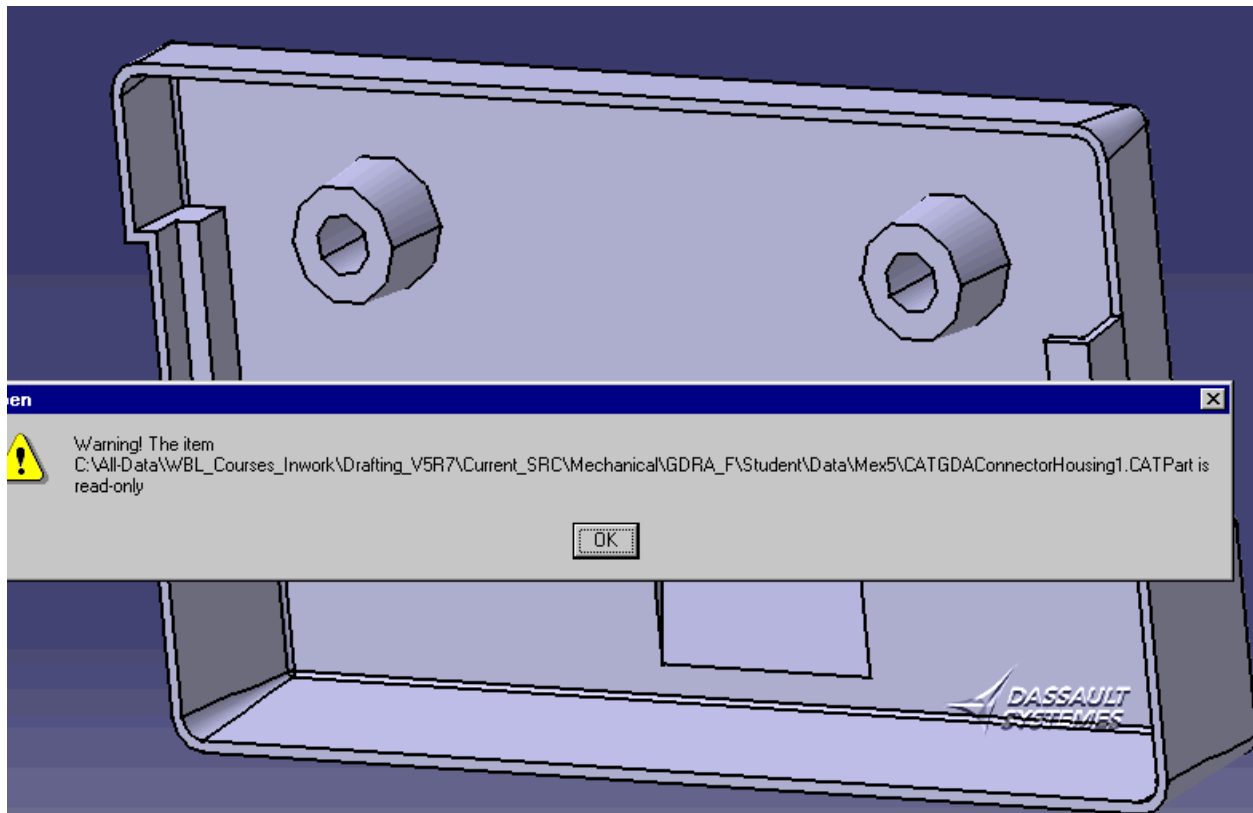
1. Select **Links** under the Edit menu.



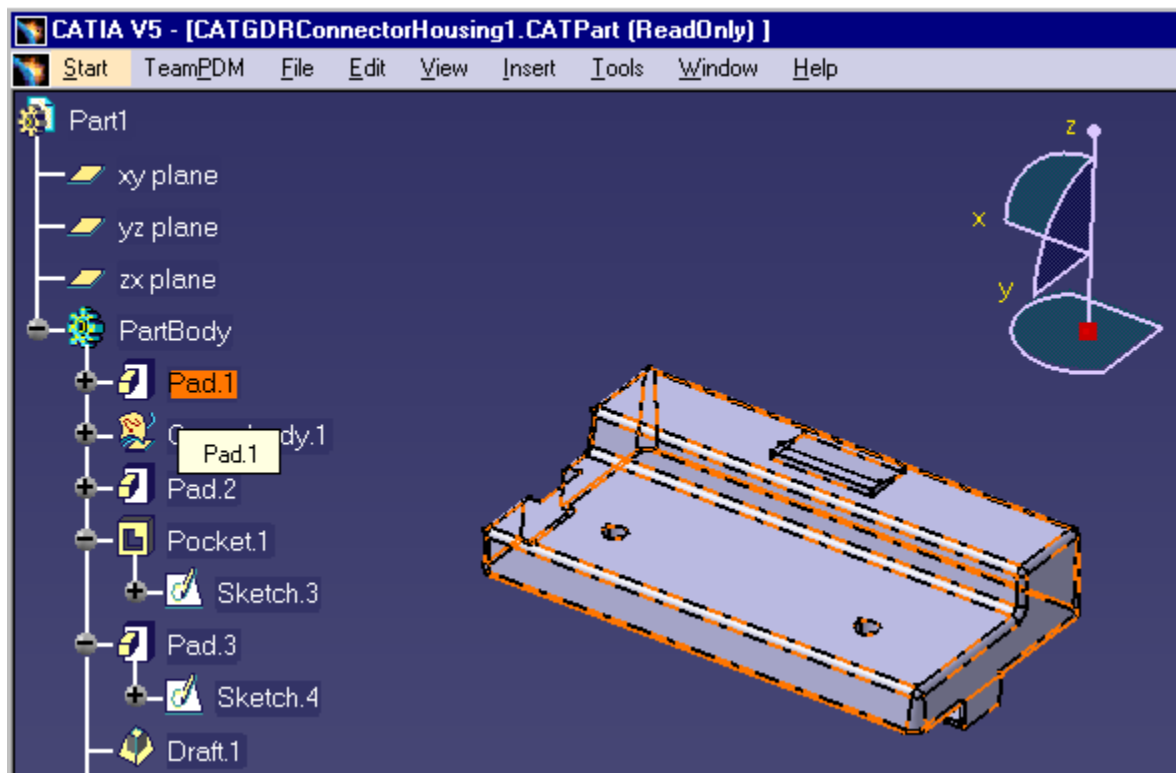
2. Select a **view** in the list, then click on the **Pointed Documents** Tab.

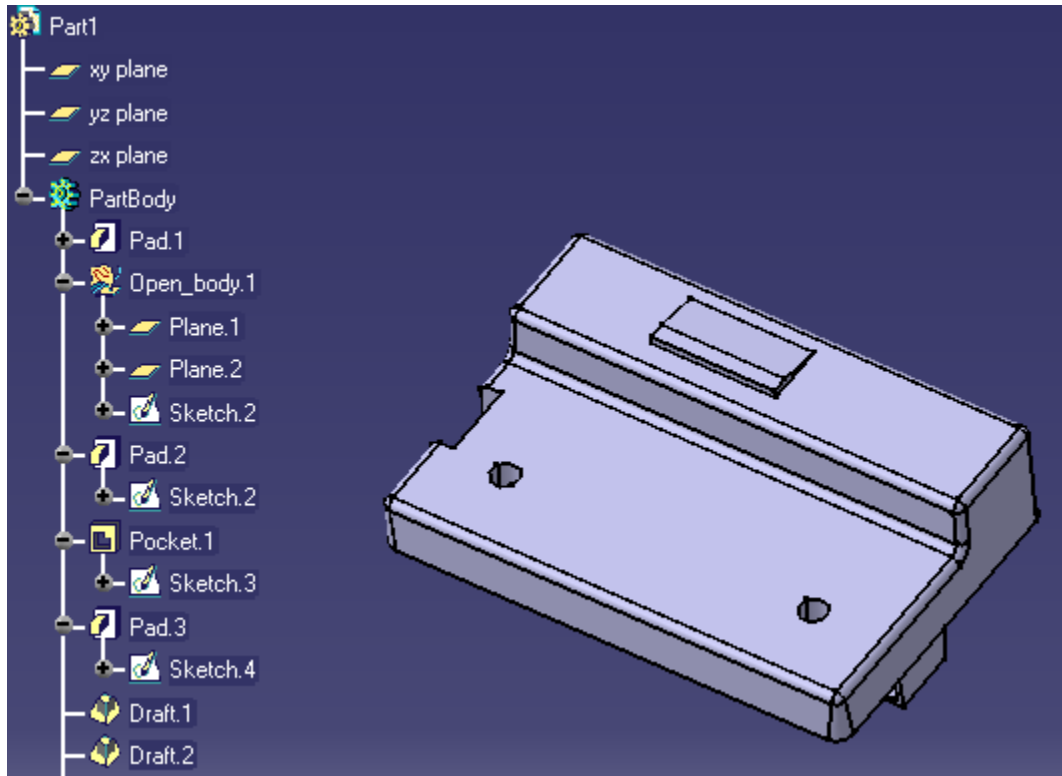
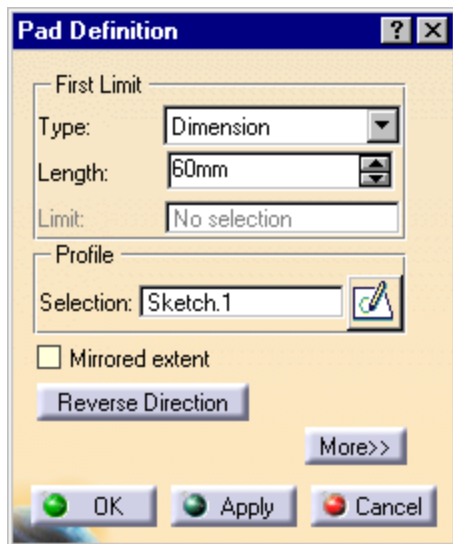


3. Select the **Open** button to open the linked CATPart.

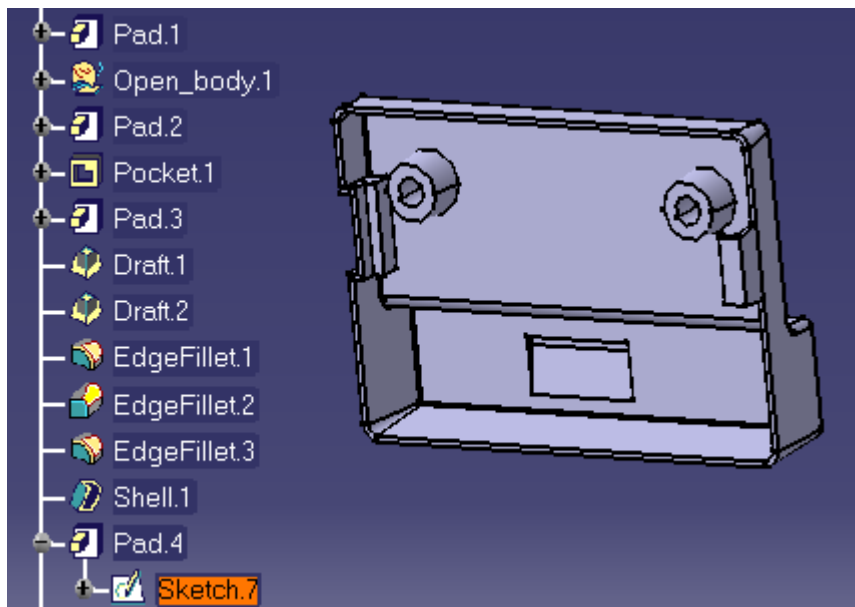


4. In the Part Design Workbench **double click** on the **Pad.1** feature in the tree.

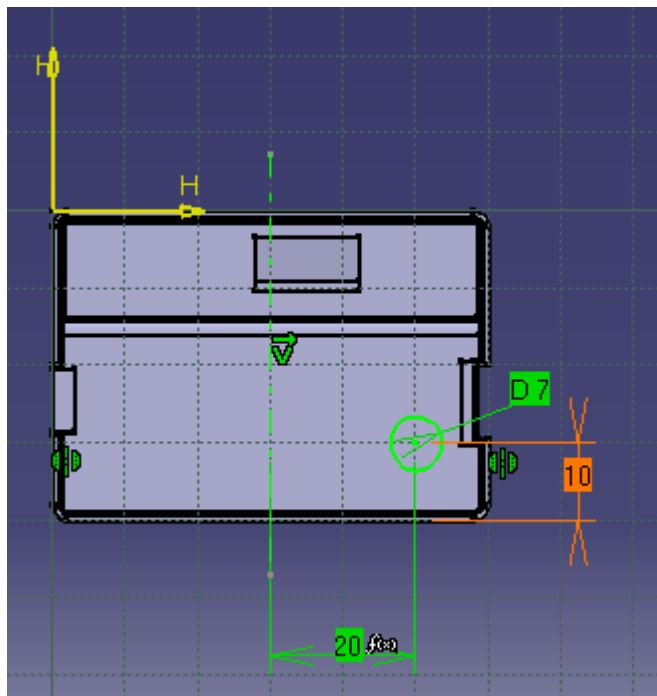




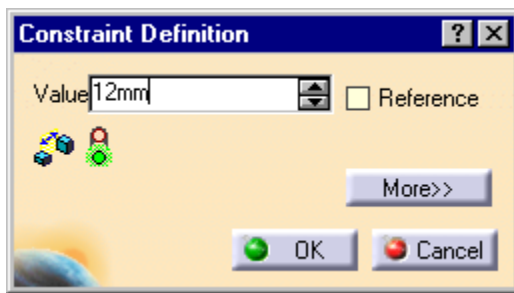
5. Double click on the **Sketch.7** in the tree



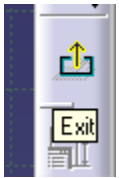
6. Select the dimension between the hole and the edge.



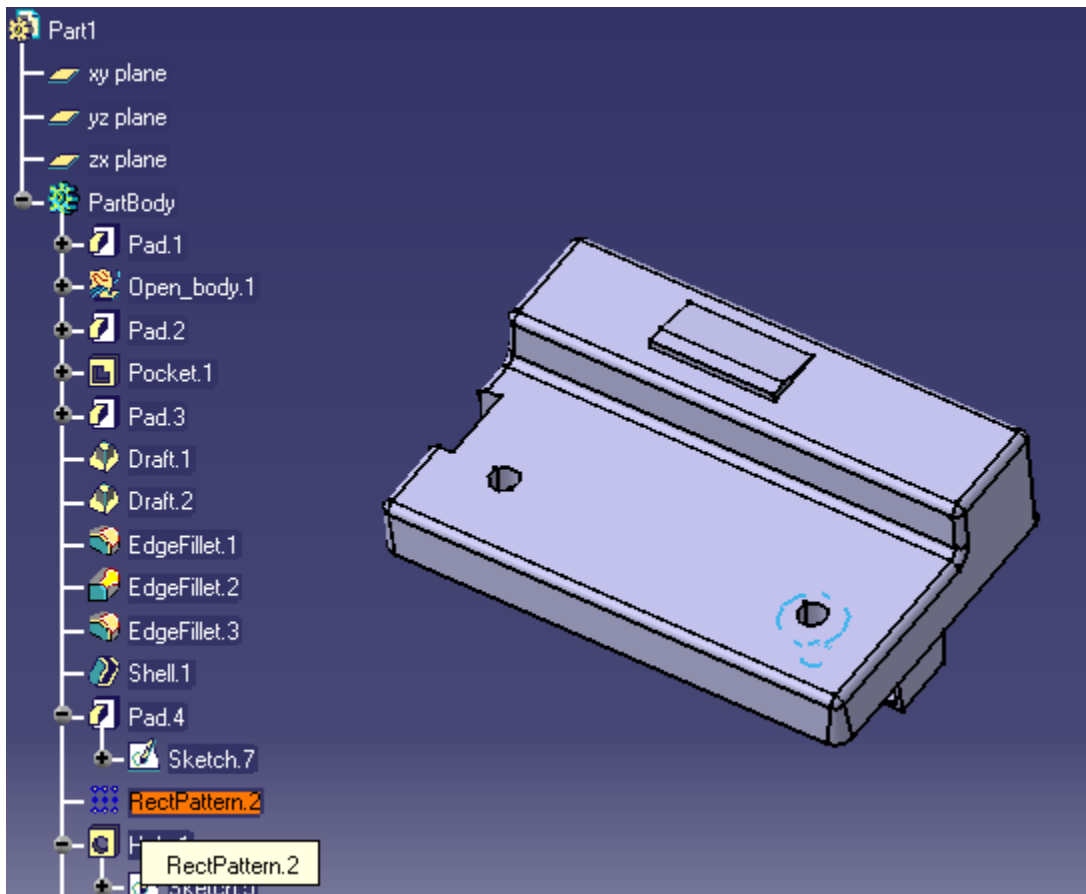
7. Change the distance to **12 mm**. Click on **OK**



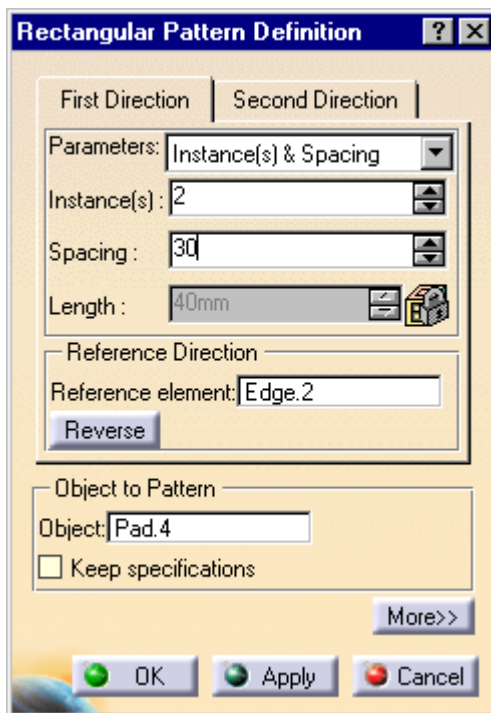
8. **Exit** the Sketcher



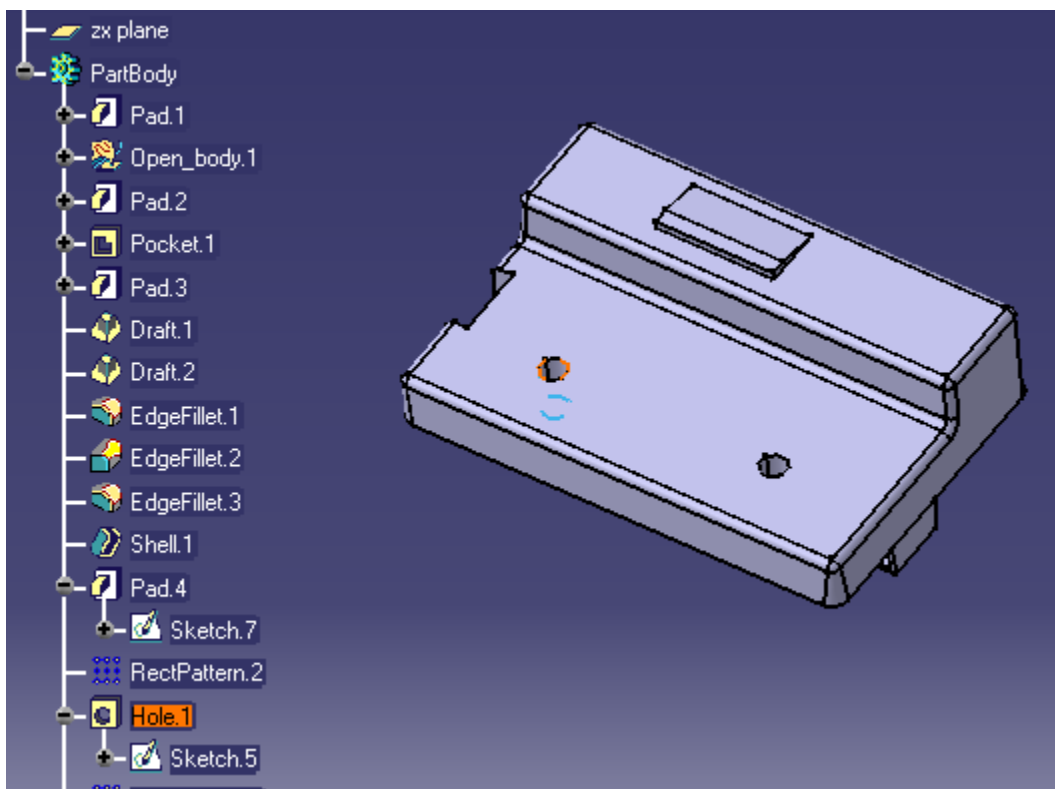
9. Double click on the RectPattern.2.



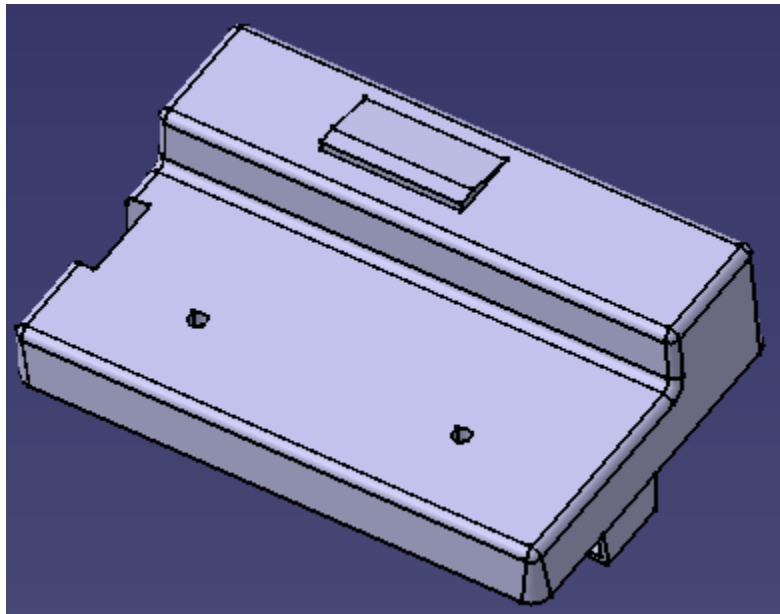
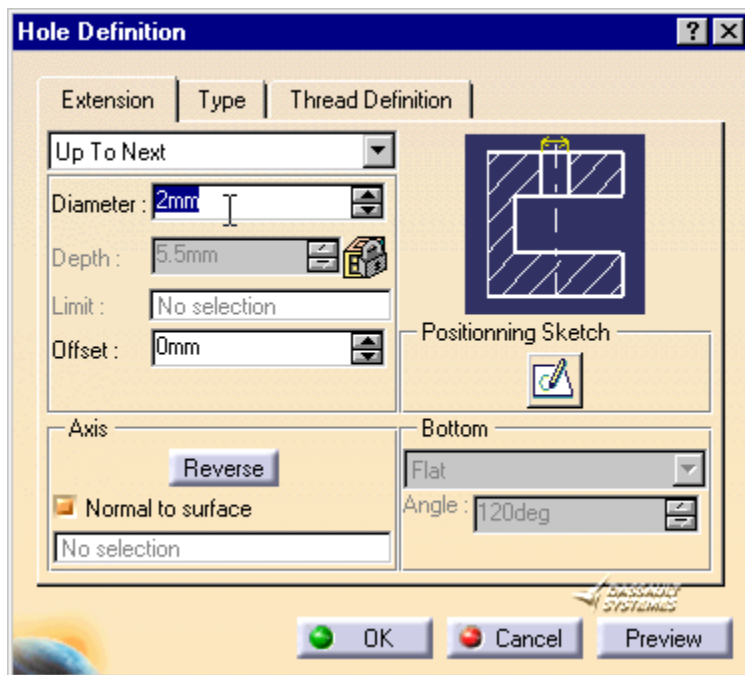
10. Change the Spacing from 40 mm to **30 mm**. Click on **OK**.



11. **Double click** on the **Hole.1** feature in the tree.

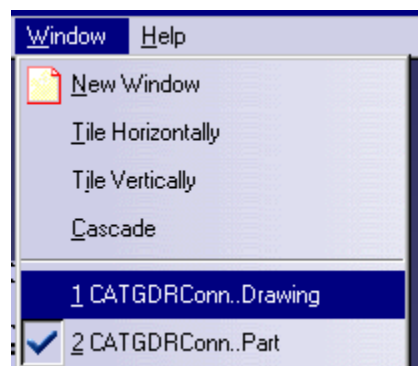


12. Change the hole diameter to **2 mm**. Click on **OK**.

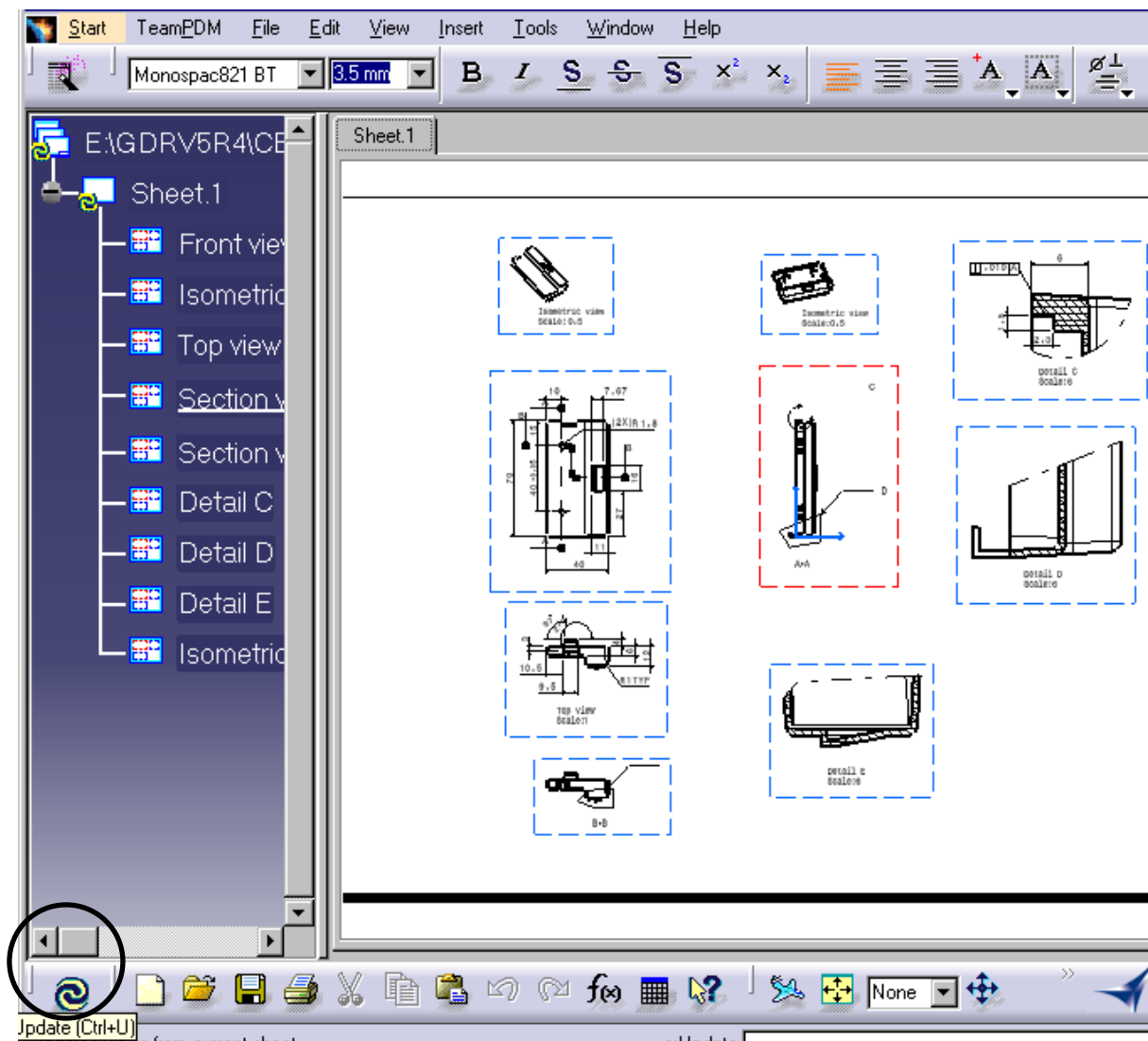


Update the drawing and check the views.

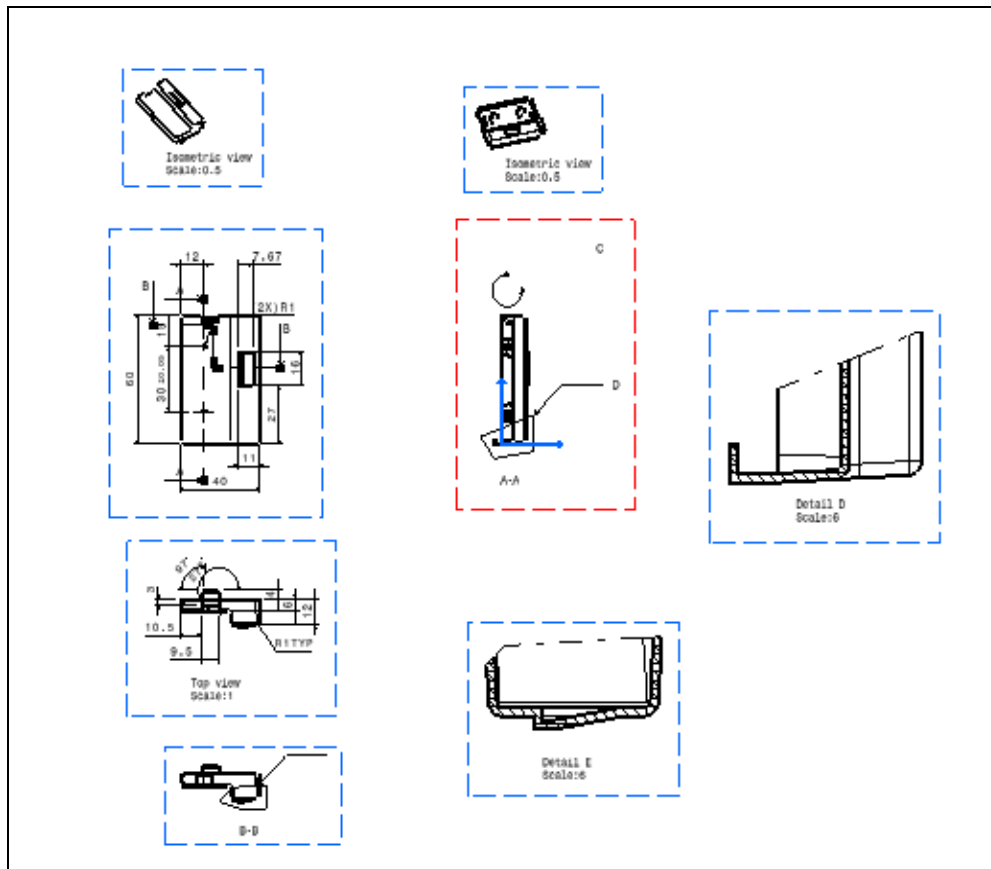
1. Go to the **drawing** window.



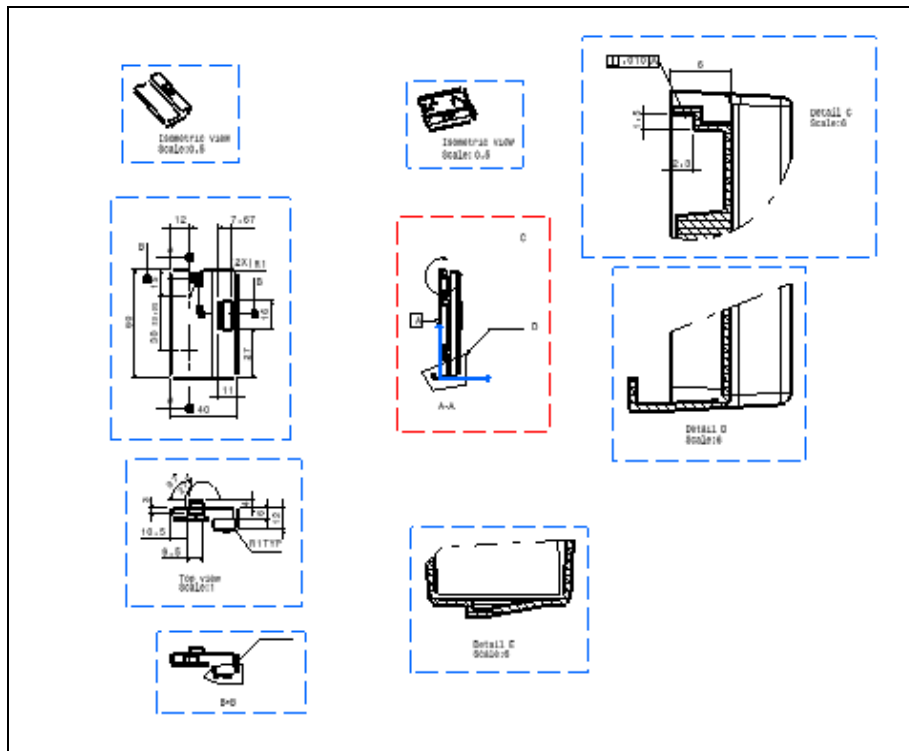
2. Click on the **update** icon.



3. Check that all views and dimensions have been correctly updated.

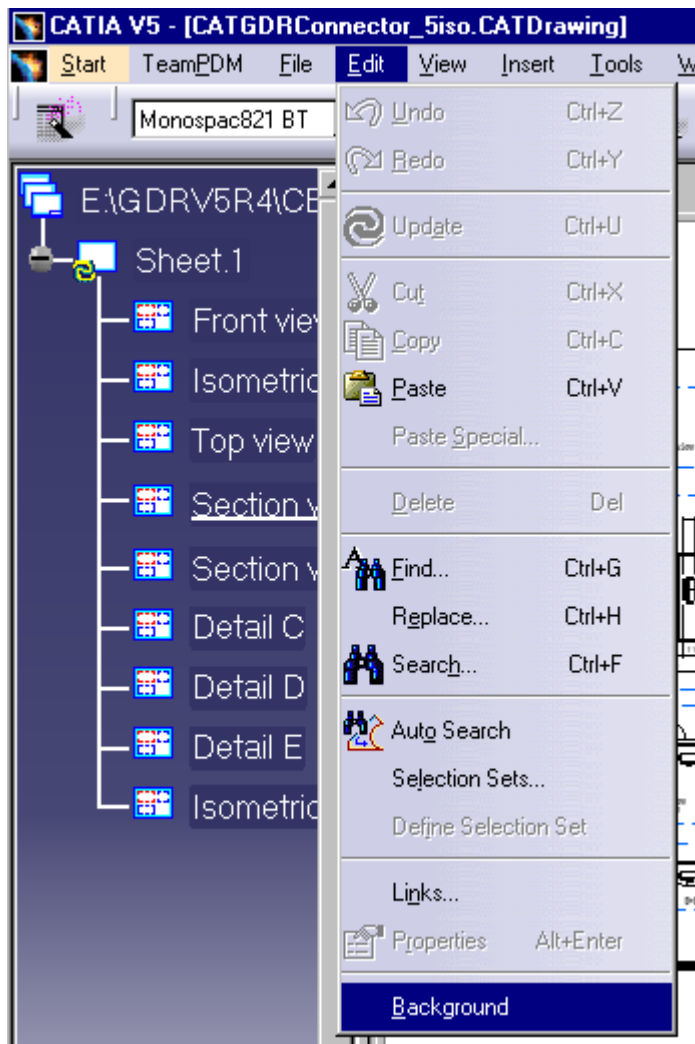


4. **Reposition** the detail view profiles and dimensions that have been moved.

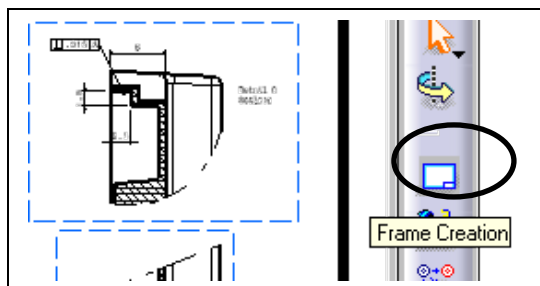


Draw a title block

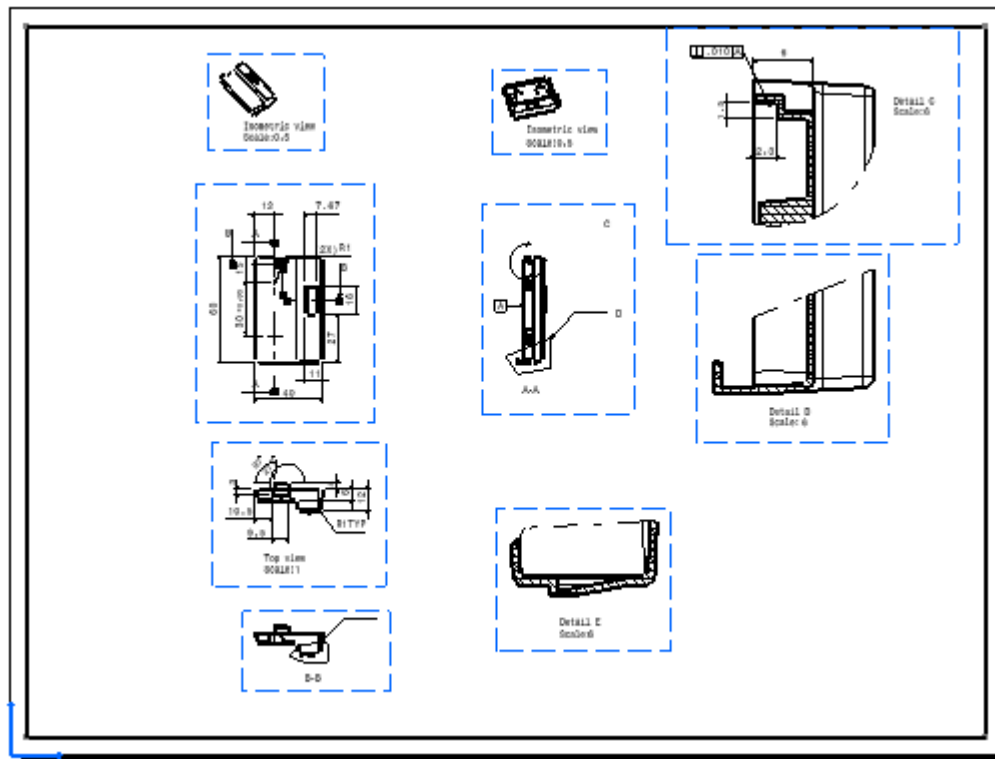
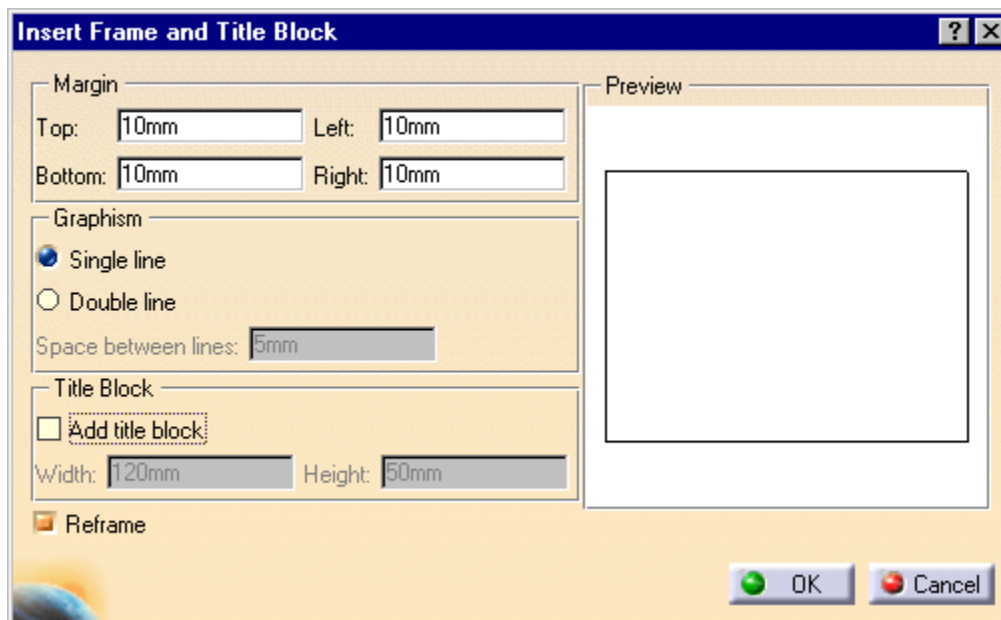
1. Select **Background** in the Edit menu.



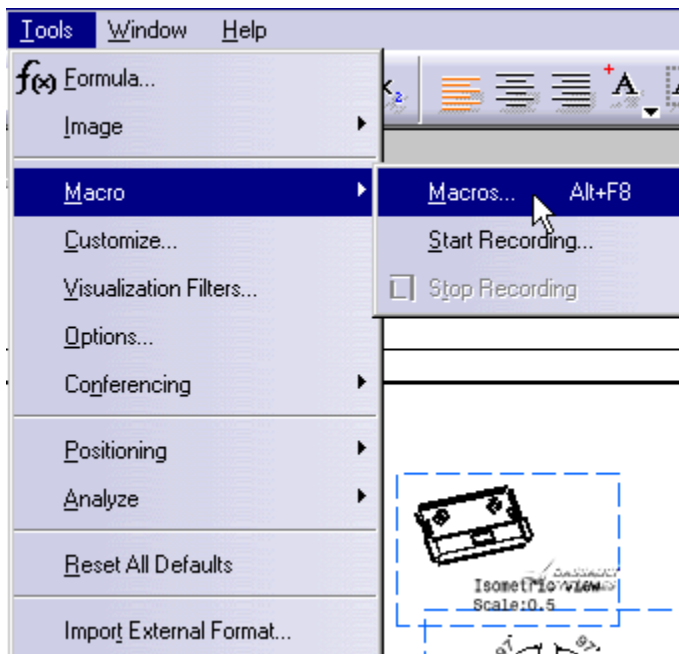
2. Click on the **Frame Creation** icon



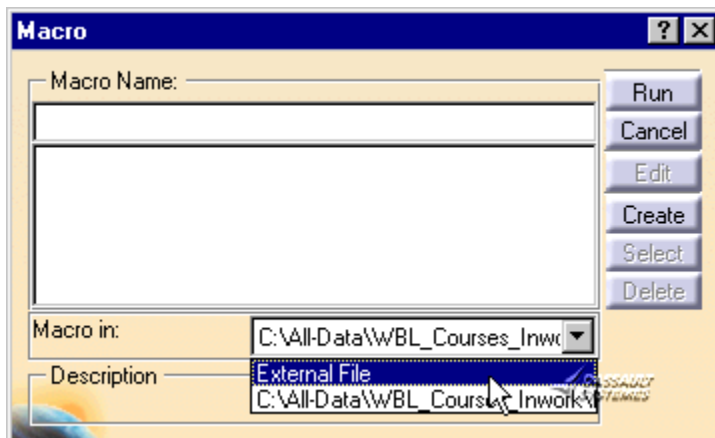
3. Change the Margin distance to **10 mm** and uncheck the **Add title block** option.



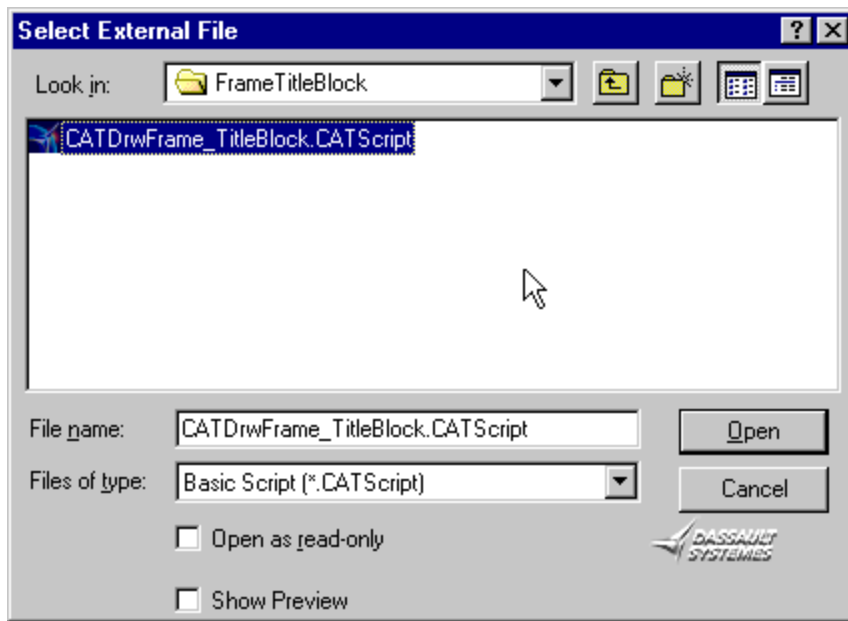
4. Select menu **Tools** and **Macro** option to create title block.



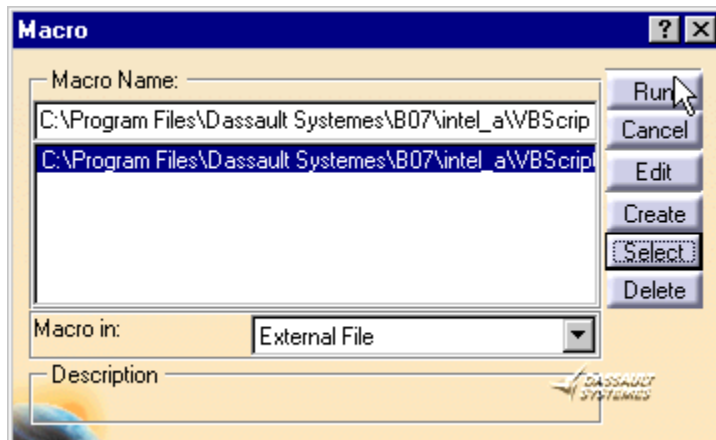
5. Select **External File** from the Macro In: drop down list




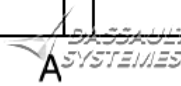
6. Select the **SELECT** button and navigate the file structure to find “CATIA PATH (ProgramFiles\DassaultSystemes\B07)\ Platform OS (intel_a) \ VBScript\FrameTitleBlock\CATDrwFrame_TitleBlock.CATScript



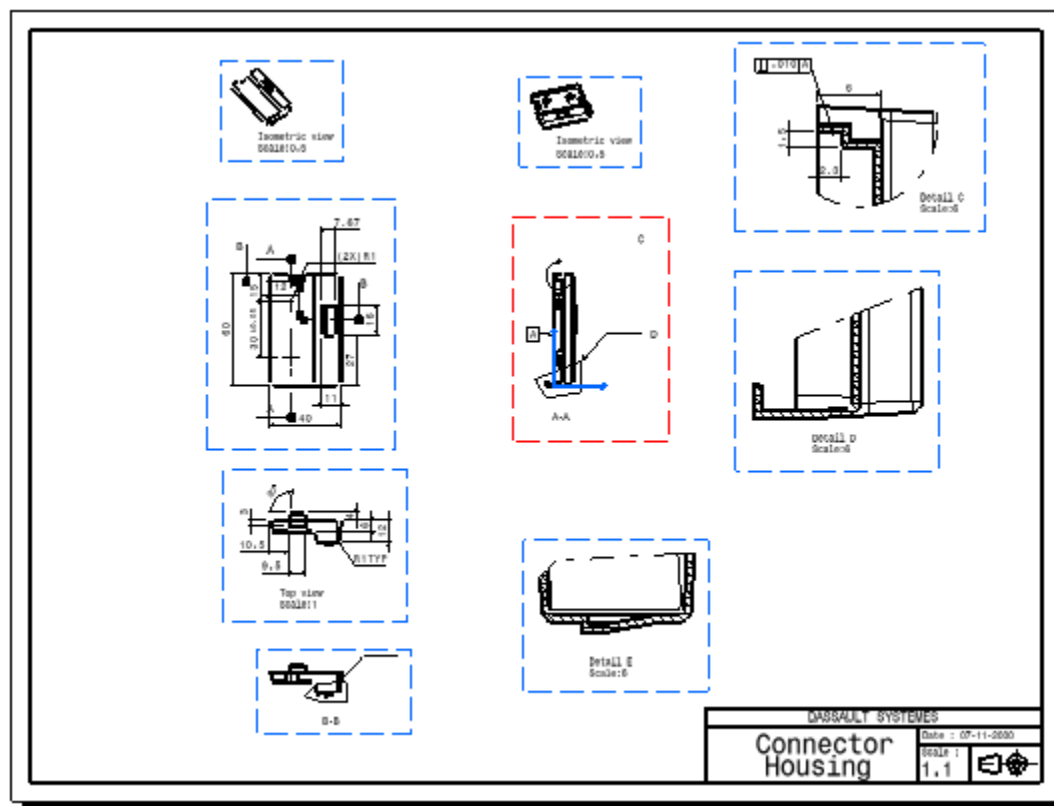
7. Select the **RUN** button to run the VBScript macro.



8. Using the **Text** icon, edit the **XXX** placeholder text with the **desired** information (Connector Housing, Sheet Number, Design Name, and Date).

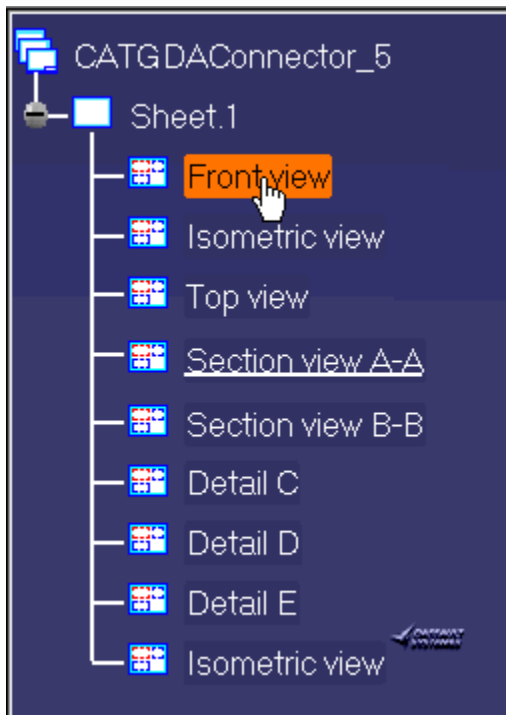
DESIGNED BY: Joe Designer		Connector Housing		2
DATE: Today				
AUTHENTICATED BY: XXX				
DATE: XXX				
SIZE A2		DASSAULT SYSTEMES		
SCALE 1	WEIGHT XXX	DRAWING NUMBER XXX	SHEET 1	1
This drawing is our property; it can't be reproduced or communicated without our written agreement.				
				

9. Return to the **Working Views** mode under the Edit menu.

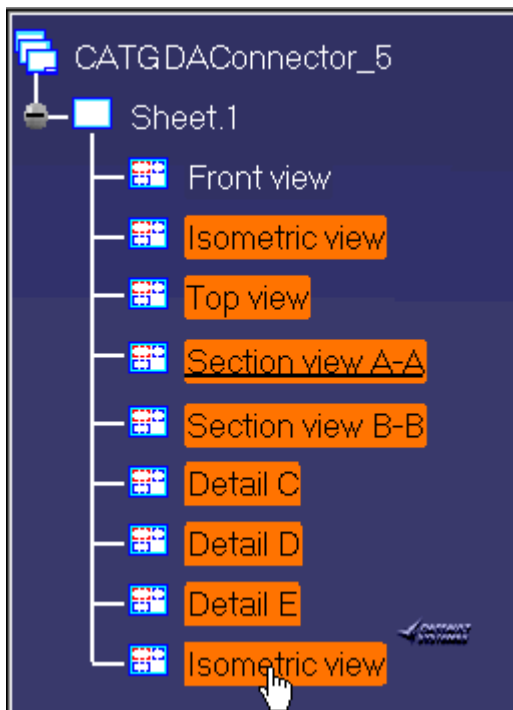


Remove all frames around views

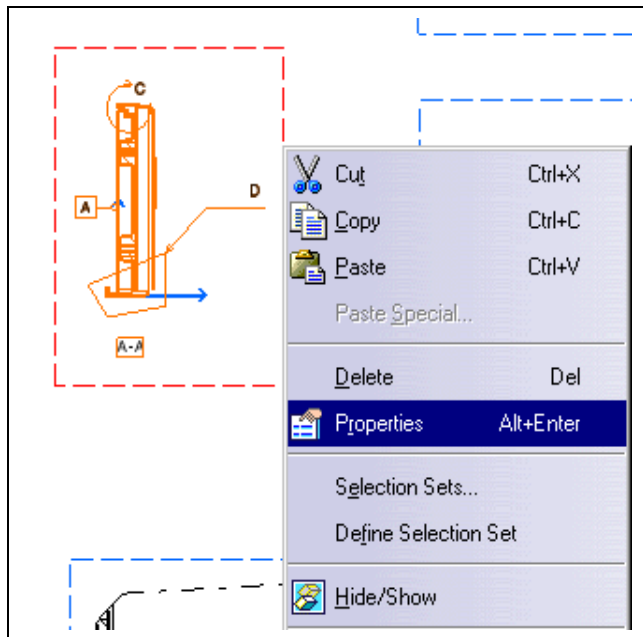
1. Using the view tree, select the **view** at the **top of the list**



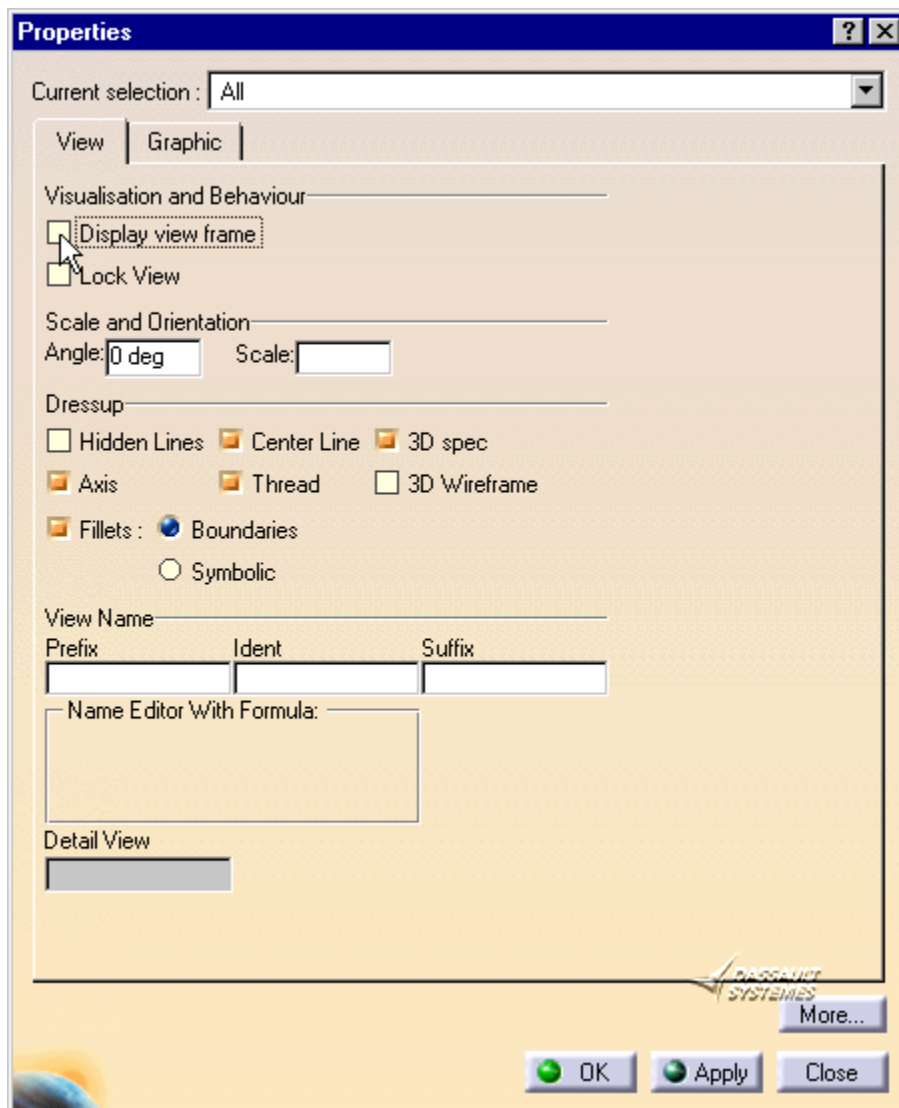
2. Hold the **SHIFT** key and select the **view** at the **bottom of the list** to select all of the views.

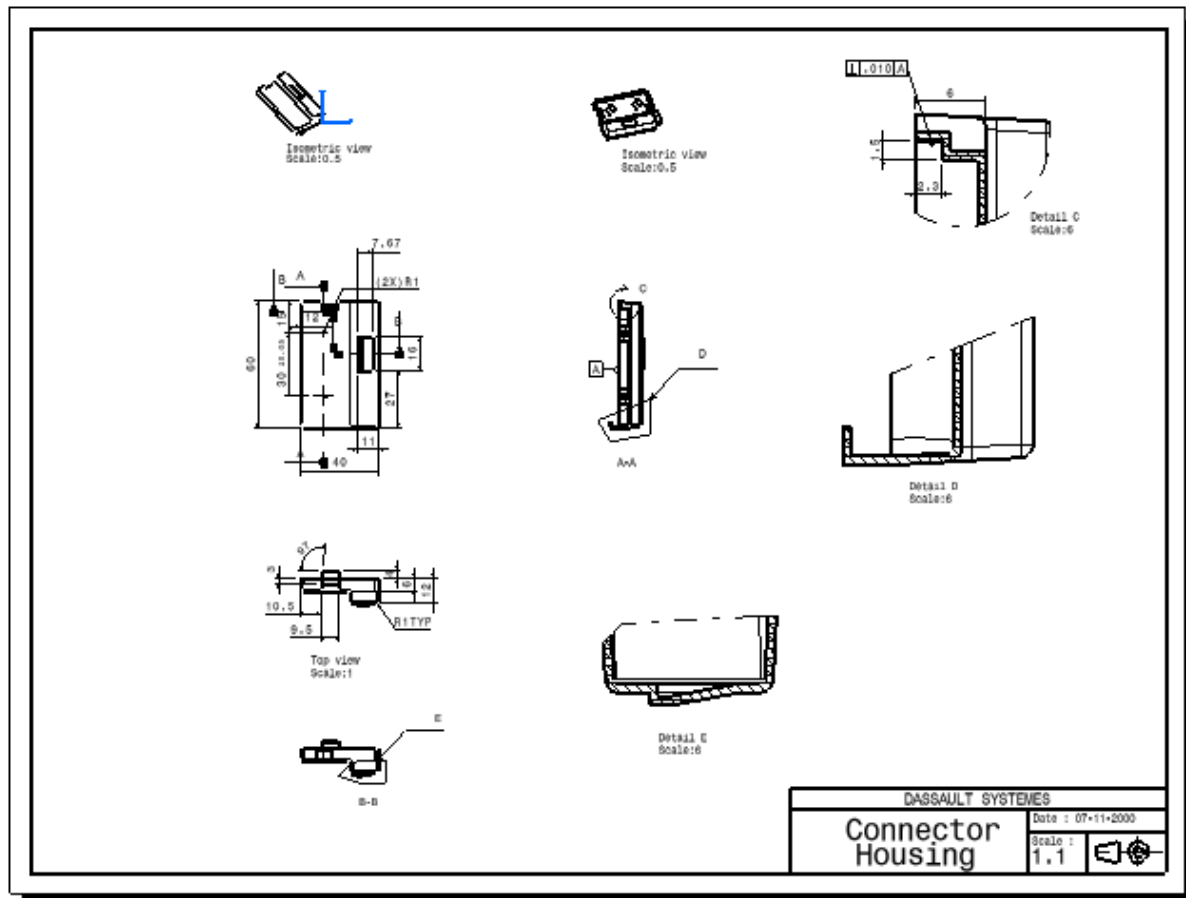


3. Open a contextual menu on a view frame and select Properties.

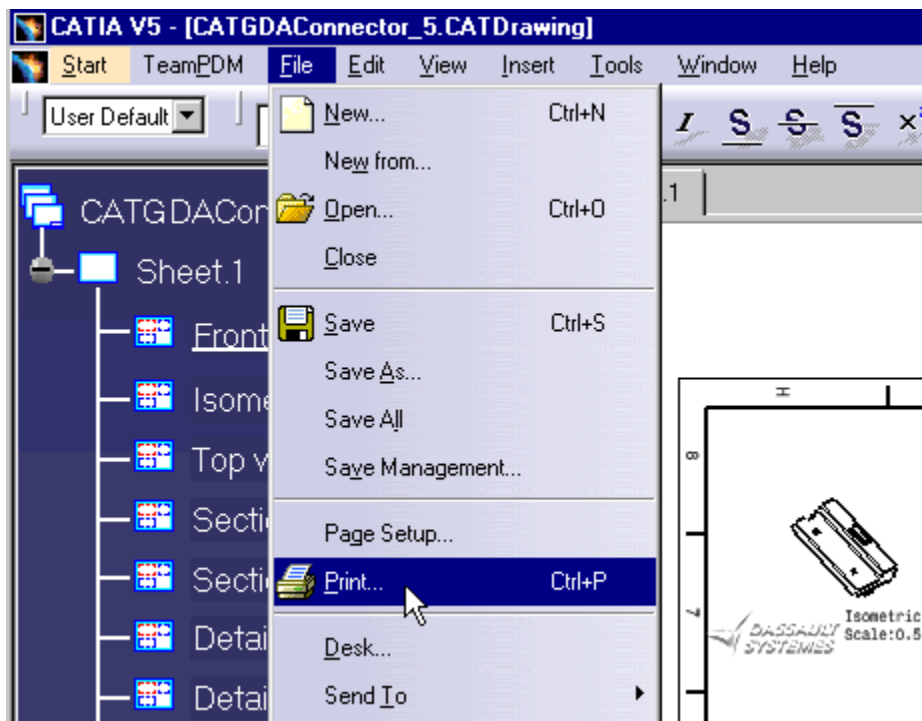


4. In the View Properties panel uncheck the Display **View Frame** option then click on **OK**.

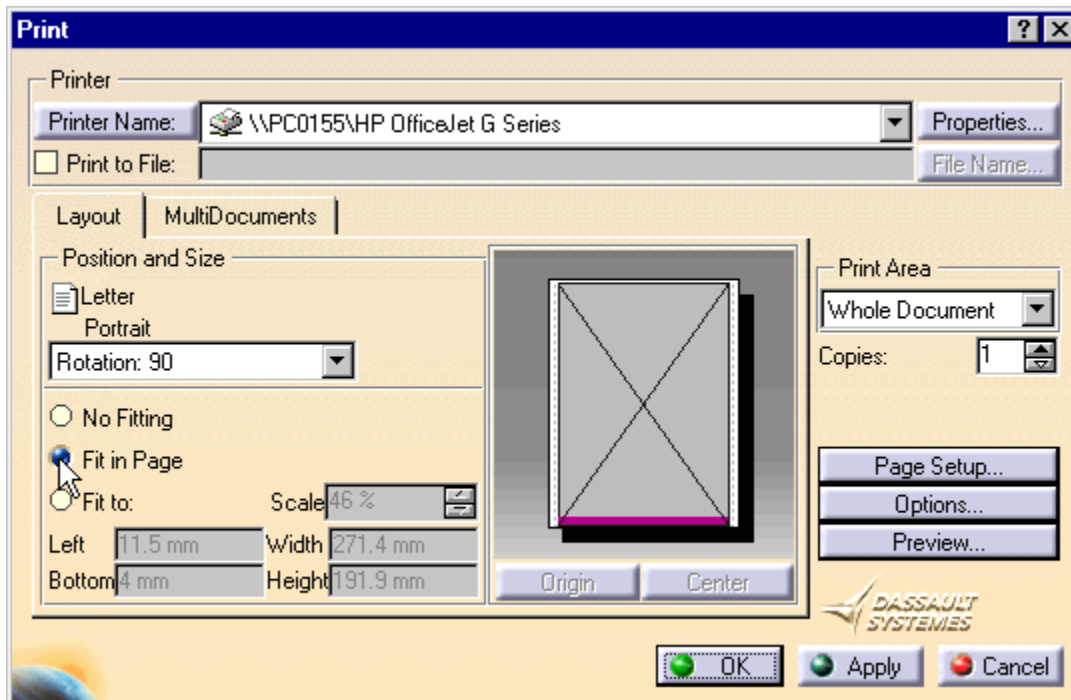




5. Select **Print** in the File menu



6. Select the **Fit in Page** option and **rotate** as necessary to fit the print on the page.



7. Select the **Preview** button to see the results.

