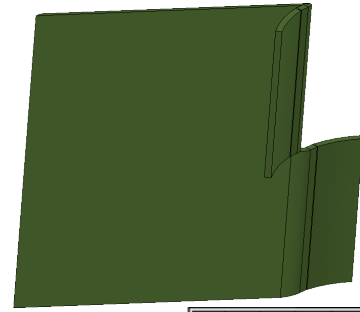




# Rocket Sheet Metal Fin




## A. Sketch.

Step 1. Click File Menu > New, click **Part** and OK.

Step 2. Click **Right Plane**  in the Feature Manager and click **Sketch**  from the Context toolbar, **Fig. 1**.

Step 3. Click **Line**  (L) on the Sketch toolbar.

Step 4. Starting at the Origin  draw lines in **Fig. 2**. Use the inferencing line, the dotted line that appears when you draw the lines to **keep side lines vertical**.

Step 5. **Right click graphics area and click Select** from menu to unselect Line tool.

Step 6. **Ctrl click top and bottom lines** to select both. Release Ctrl key and click **Make Parallel**  on the Context toolbar, **Fig. 3**.

Step 7. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 8. Add dimensions, **Fig. 4**.

## B. Save as "FIN".

Step 1. Click File Menu > Save As.

Step 2. Key-in **FIN** for the filename and press ENTER.

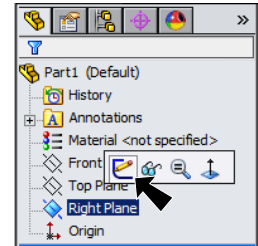


Fig. 1

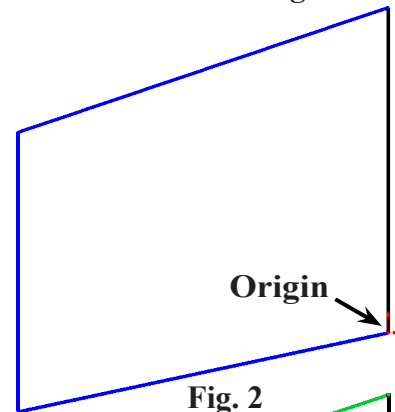


Fig. 2

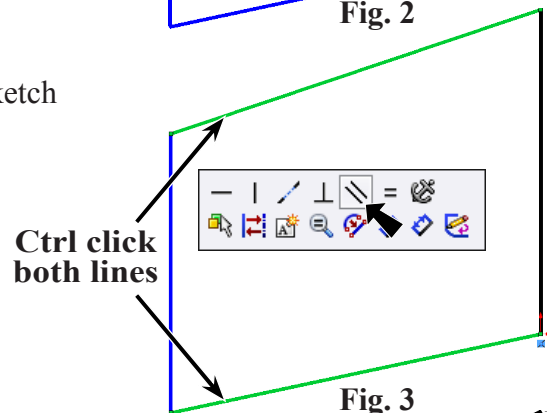


Fig. 3

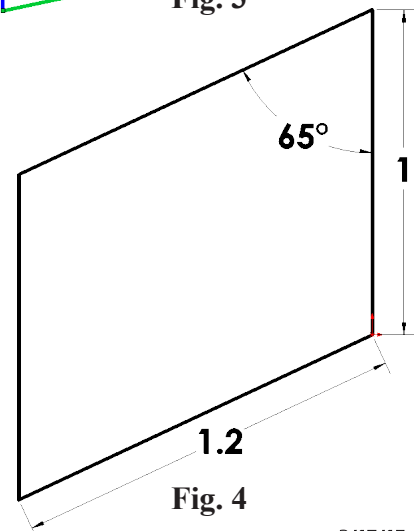
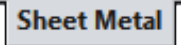


Fig. 4

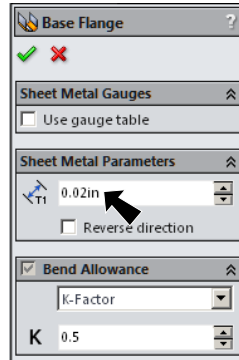
### C. Base Flange.

Step 1. Click **Sheet Metal**  on the Command Manager toolbar.

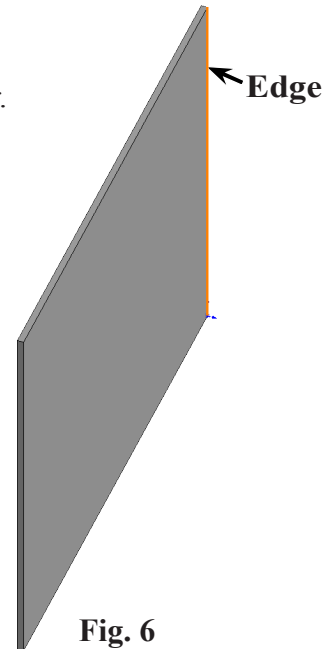
Step 2. Click **Base Flange/Tab**  on the Sheet Metal toolbar.

Step 3. In the Base Flange Property Manager set:  
under Sheet Metal Parameters, **Fig. 5**

**Thickness**  T1 **.02**  
click OK .



**Fig. 5**




**Fig. 6**

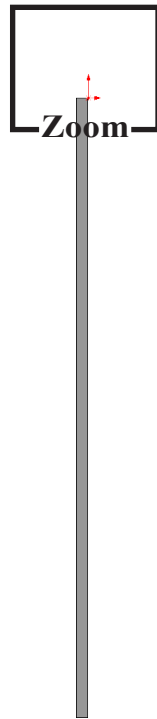
### D. Miter Flange 1 Right Side.

Step 1. Click **Miter Flange**  on the Sheet Metal toolbar.


Step 2. Click towards the top of **back right edge** of sheet metal, **Fig. 6**.

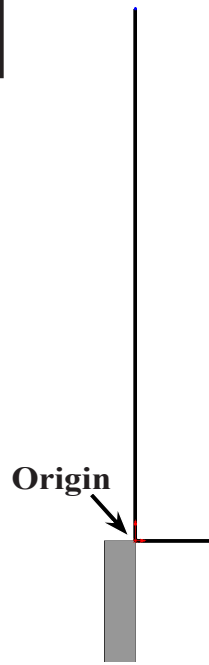
Step 3. Click **Normal To**  on the View toolbar. (**Ctrl-8**)

Step 4. Zoom in on **top end of fin**, **Fig. 7**. To zoom, place the cursor over the top of fin and spin the wheel on mouse back. While spinning the wheel keep cursor on top of fin.




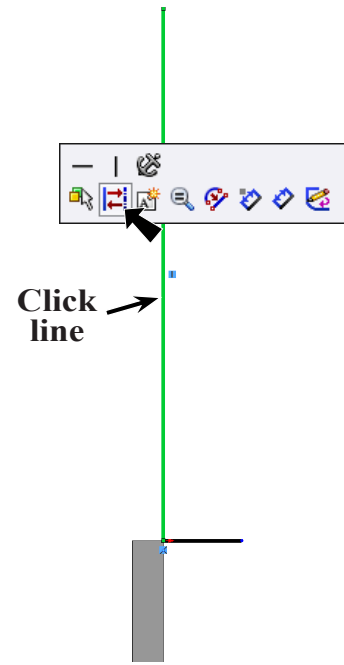
**Fig. 7**

Step 5. Click **Line**  (L) on the Sketch toolbar.



**Fig. 8**

Step 6. Starting at the **Origin**  draw a short horizontal line out to the right and a vertical line up from the Origin, **Fig. 8**.



**Fig. 9**

Step 7. **Right click graphics area and click Select** from menu to unselect Line Tool.

Step 8. **Click the vertical line and click Construction Geometry**  on Context toolbar, **Fig. 9**.

Step 9. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 10. Dimension lines  
.05 and .35, Fig. 10.

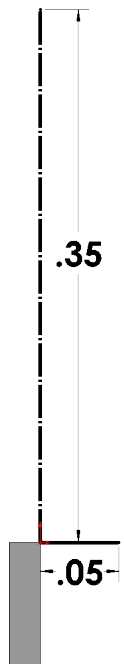


Fig. 10

Step 11. Click **Centerpoint Arc** in the Arc flyout on the Sketch toolbar.

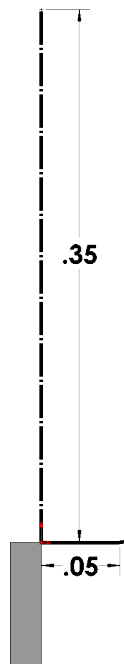


Fig. 11

Step 12. Click the top endpoint of the vertical construction line to start the arc. Click right endpoint of the line for first endpoint of arc. Then move cursor counterclockwise. Click to place the second endpoint, Fig. 11.

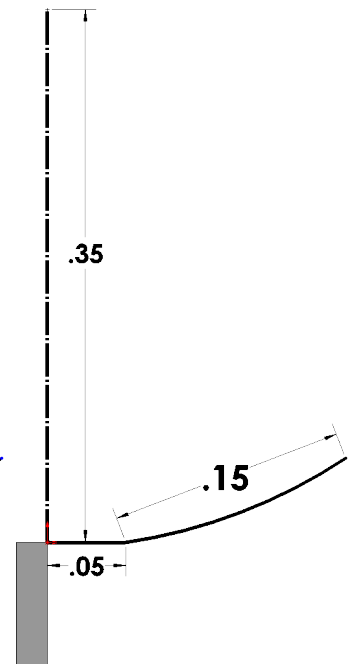


Fig. 12

Step 13. Click **Smart Dimension** on the Sketch toolbar.



Step 14. Dimension length of arc .15, Fig. 12.

Step 15. Click **Exit Sketch** on the Sketch toolbar.

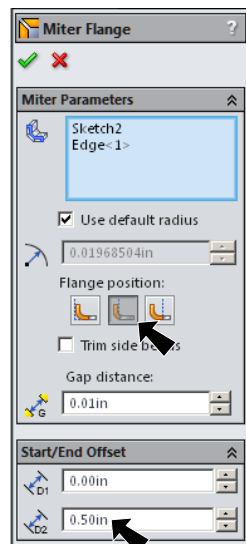


Fig. 13

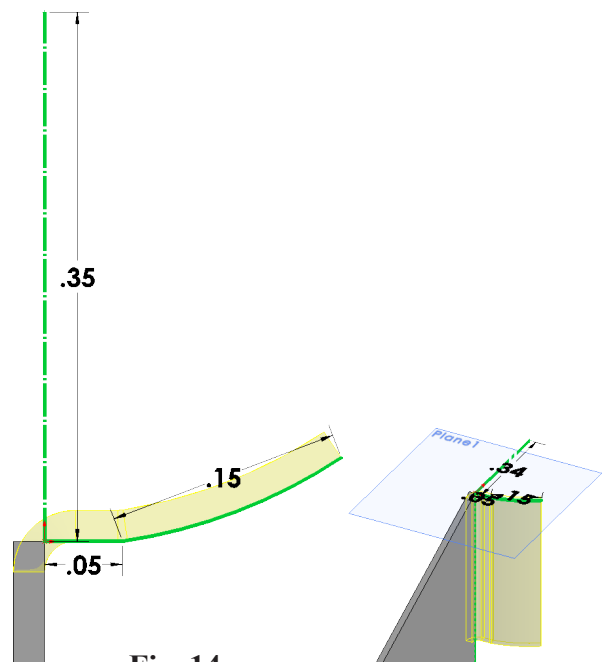



Fig. 14

Step 16. In Miter Flange Property Manager set:  
under Flange position, Fig. 13

**Material Outside** 

under Start/End Offset

**End Offset Distance2**  .5

click **Trimetric**  on the Standard Views toolbar

click OK .

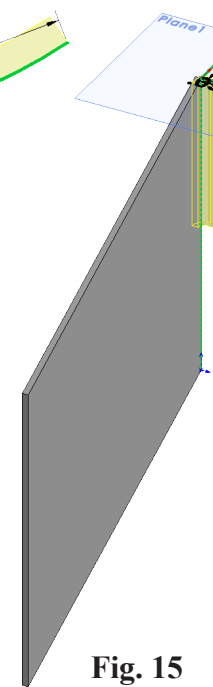



Fig. 15


## E. Miter Flange 2 Left Side.

Step 1. Hide Plane1. To hide, click **Plane1** in graphics area and **Hide**  from the Context toolbar, **Fig. 16**.

Step 2. Rotate view to view left side of **Fin (inside face)**, **Fig. 17**. To rotate, hold down middle mouse button (wheel) and drag.


Step 3. Click **Miter Flange**  on the Sheet Metal toolbar.

Step 4. Click towards the top of **back left edge** of the sheet metal, **Fig. 17**.

Step 5. Click **Normal To**  on the View toolbar. (**Ctrl-8**)

Step 6. Zoom in on **top end of fin**, **Fig. 18**. To zoom, place the cursor over the top of fin and spin the wheel on mouse back. While spinning the wheel keep cursor on top of fin.

Step 7. Click **Line**  (**L**) on the Sketch toolbar.

Step 8. Starting at the **Origin**  draw a short horizontal line out to the left and a vertical line up from the Origin, **Fig. 19**.

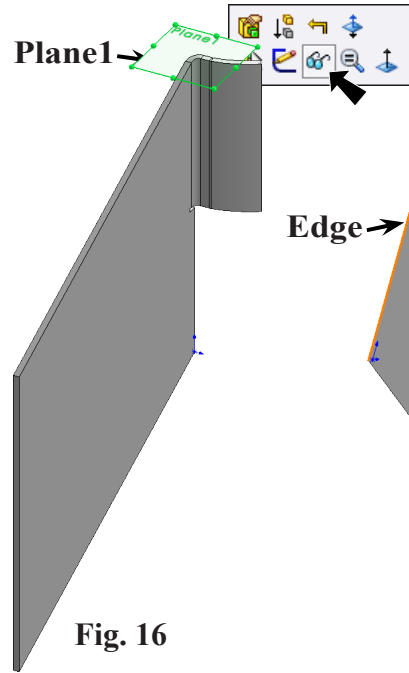


Fig. 16

Fig. 17

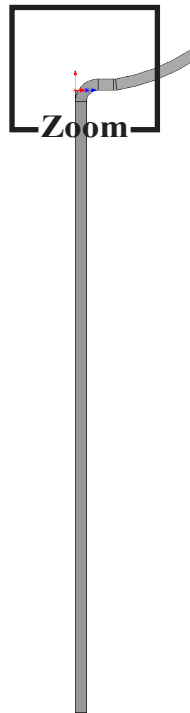


Fig. 18

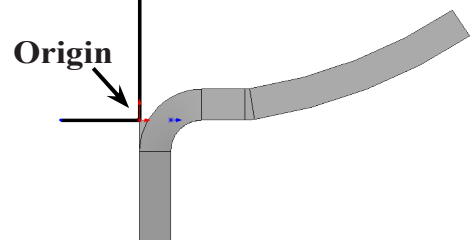

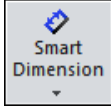


Fig. 19

Step 9. **Right click graphics area and click Select** from menu to unselect Line Tool.


Step 10. Click the **vertical line** and click **Construction Geometry**  on the Context toolbar, **Fig. 20**.

Step 11. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 12. Dimension lines **.05** and **.35**, **Fig. 21**.

Step 13. Click **Centerpoint Arc**  in the **Arc** flyout  on the Sketch toolbar.

Step 14. Use top endpoint of vertical construction line for centerpoint of arc and left endpoint of the line as first endpoint of arc, **Fig. 22**.

Step 15. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 16. Dimension length of arc **.15**, **Fig. 22**.

Step 17. Click **Exit Sketch**  on the Sketch toolbar.

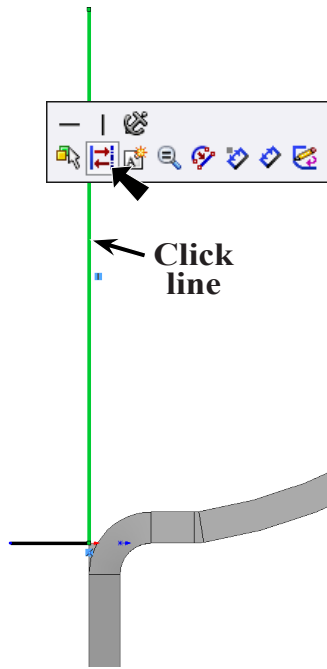


Fig. 20

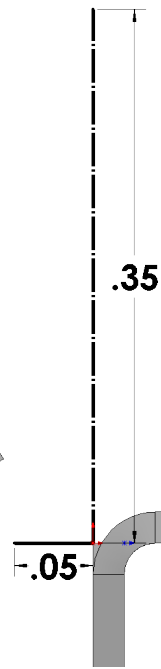


Fig. 21

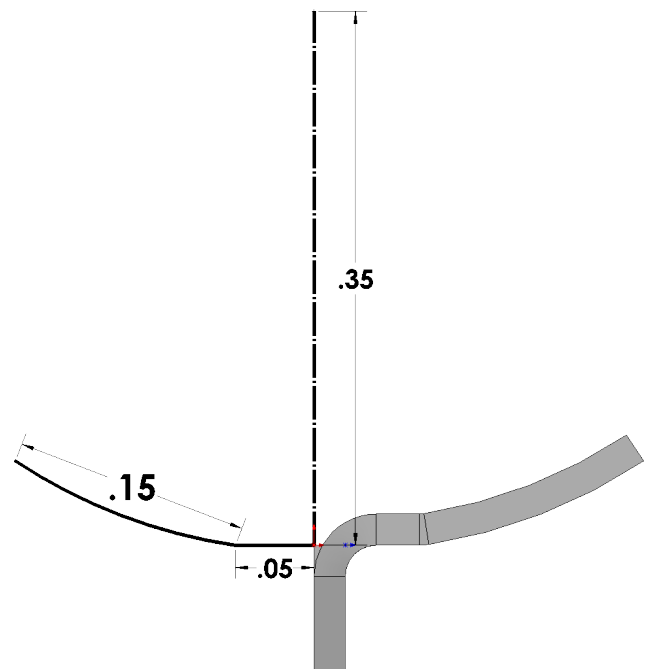


Fig. 22

Step 18. In Miter Flange Property Manager set:  
 under Flange position, **Fig. 25**

**Material Outside** 


click **Trimetric**  on the  
 Standard Views toolbar

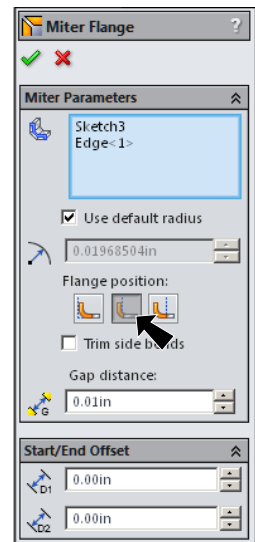
click OK .

## F. Flatten Sheet Metal.

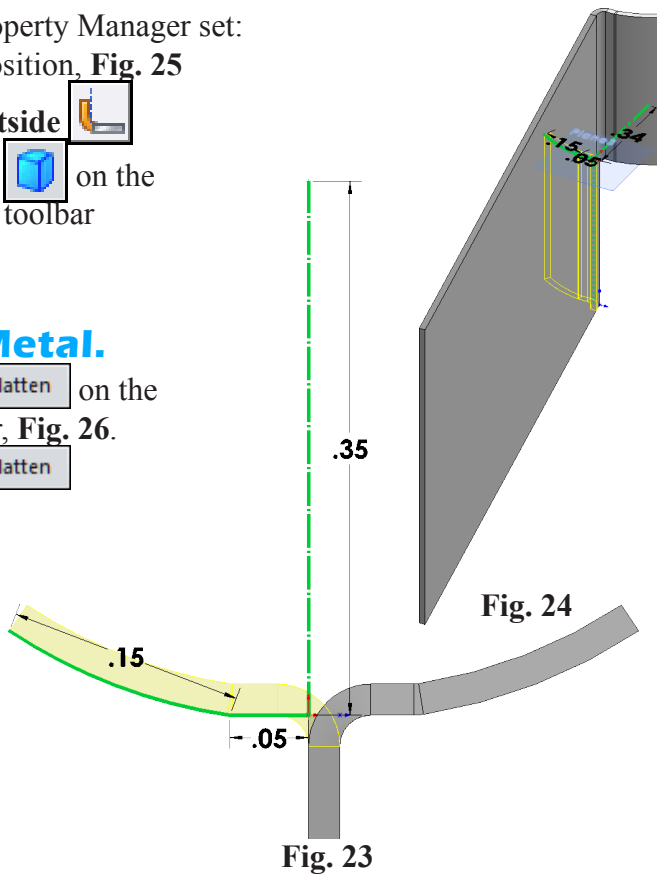
Step 1. Click **Flatten**  on the  
 Sheet Metal toolbar, **Fig. 26**.

Click **Flatten**   
 again to unflatten.

Step 2. Hide Plane2.  
 Click **Plane2**  
 in graphics area  
 and **Hide**   
 from the Context  
 toolbar, **Fig. 26**.

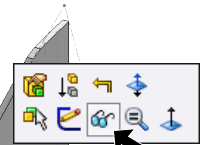


**Fig. 25**



**Fig. 23**

**Fig. 24**



**Plane2**

**Fig. 26**

## G. Appearance.

Step 1. Click the Fin, click **Appearance Callout**  on the Context toolbar and click **FIN** , Fig. 27.

Step 2. In the Appearances Property Manager, under Color, Fig. 28 set **RGB** values:

**R 86**

**G 118**

**B 55**

click OK .

Step 3. Save. Use **Ctrl-S**.

