

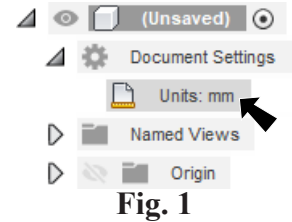


A. New Metric Document.

Step 1. Confirm new document and **units** are mm, Fig. 1.

B. Sketch Circles.

Step 1. On the Solid tab **SOLID** click **Create Sketch**  in the Sketch area of toolbar and click **Right plane**  in canvas, Fig. 2.




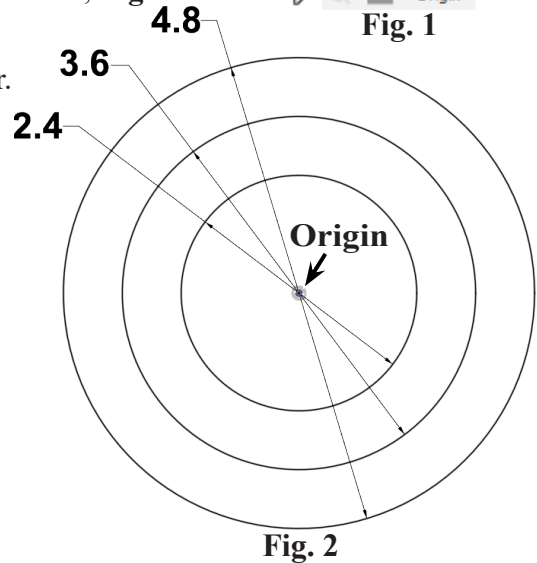
Step 2. Click **Center Diameter Circle**  (C) in toolbar.

Step 3. Sketch **three circles** at the Origin , Fig. 18.

Step 4. Click **Dimension**  (D) on the toolbar.


Step 5. Dimension diameters, Fig. 2.

Step 6. Click **Fit**  (F6) on the Navigation Bar.



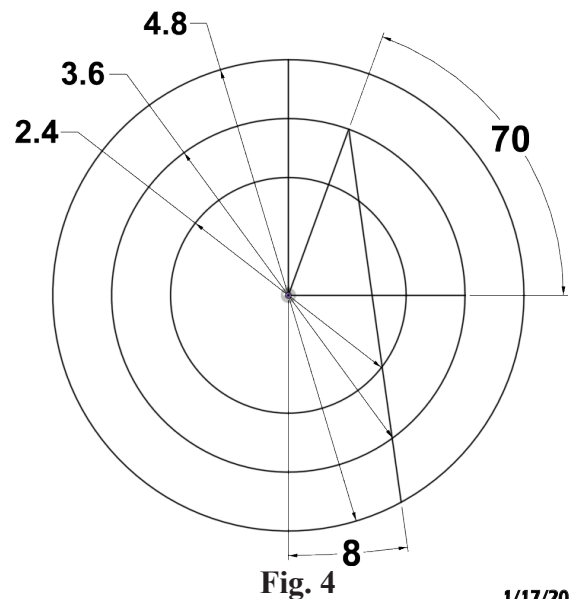
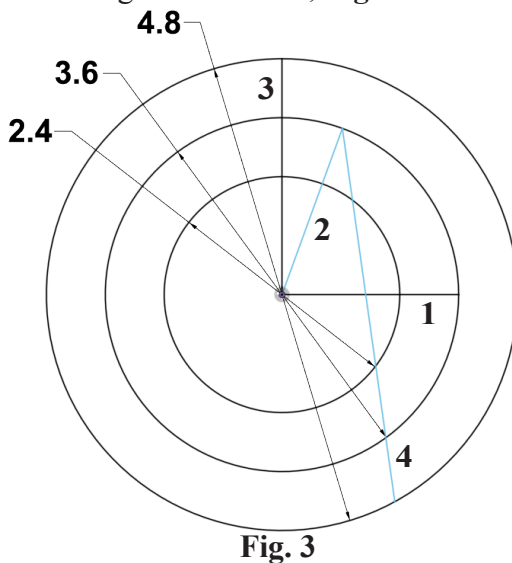
C. Add Lines.

Step 1. Click **Line**  (L) on the toolbar.

Step 2. Starting from the Origin  sketch **two radii** out to the middle circle, keep **one horizontal** (1) and the other **at angle** (2). Sketch a vertical radii to outer circle (3). Sketch a line at angle from endpoint of radii to outer circle (4), Fig. 3.

Step 3. Click **Dimension**  (D) on the toolbar.

Step 4. Dimension angles **70°** and **8°**, Fig. 4.



D. Save as "E CLIP".

Step 1. Click File Menu > Save.

Step 2. In the Save dialog box:
Key-in **E CLIP** for filename
click Save.

E. Trim.

Step 1. **Hide dimensions** in the Sketch Palette, **Fig. 5**.

Step 2. On the Sketch tab **SKETCH** click **Trim**  (T) in the Modify area of toolbar.

Step 3. Trim:
Circles left of centerline 1, 2, 3 (click to trim), **Fig. 6**
two arcs segments 4 and 5
results shown in **Fig. 7**.

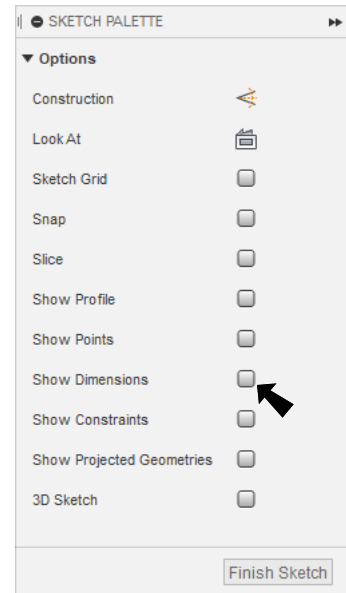


Fig. 5

Before Trim

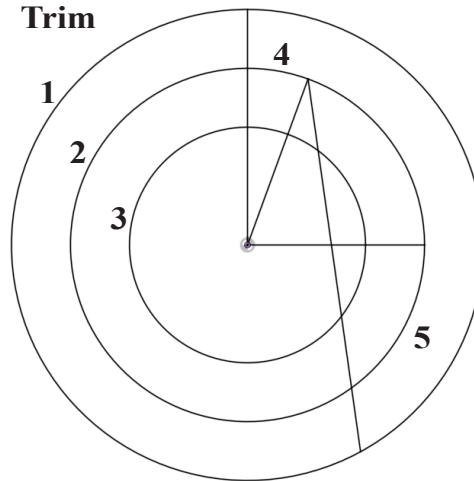


Fig. 6

After Trim

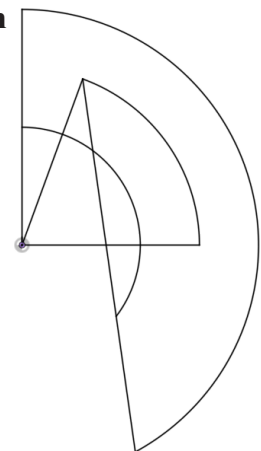


Fig. 7

F. Sketch Fillets.

Step 1. On the Sketch tab **SKETCH** click **Fillet**  in the Modify area of toolbar.

Step 2. Click line and arc at **top of middle arc segment**, Fig. 8
Key-in .3

Click **intersection point at bottom of middle arc segment**, Fig. 9
Key-in .3

Click intersection point at **bottom of outside arc**, Fig. 10
Key-in .35

Press ENTER to complete the command

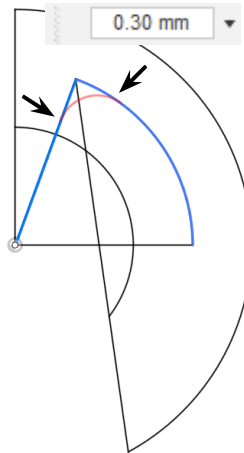


Fig. 8

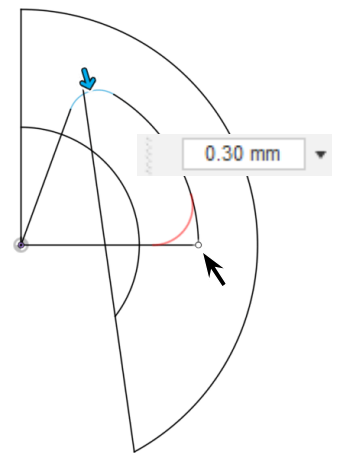


Fig. 9

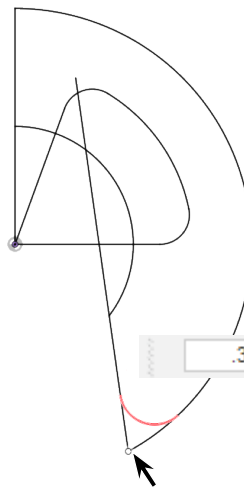


Fig. 10

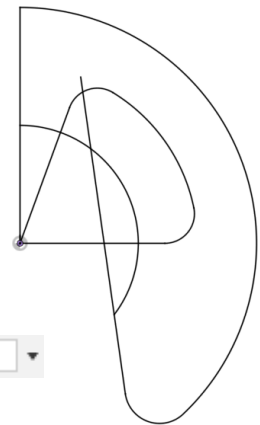


Fig. 11

G. Mirror.

Step 1. Click **Mirror**  on the toolbar.

Step 2. In the Mirror panel set, Fig. 12
Objects click **all geometry except vertical centerline**, Fig. 13
confirm 9 selected
Mirror Line click **Mirror Line Select** button
 click **centerline**, Fig. 14
 click **OK**.

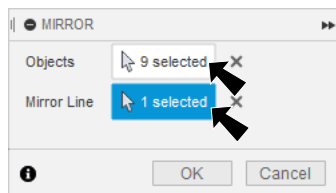


Fig. 12

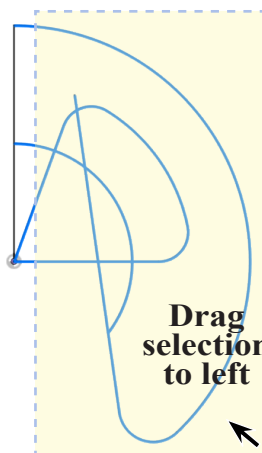


Fig. 13

Tip: Drag a selection window from bottom right up crossing all but centerline

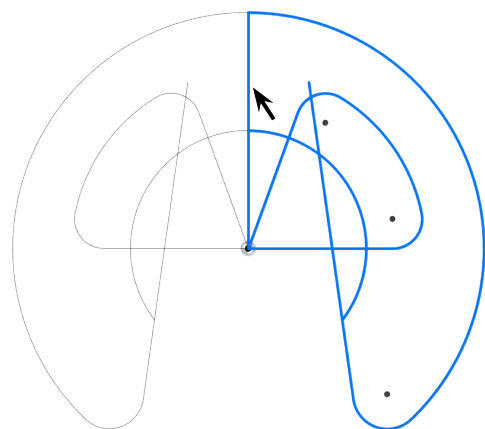


Fig. 14

H. Extrude.

Step 1. Show Profile in the Sketch Palette, Fig. 15.

Step 2. Click Home  (Isometric) on View Cube .

Step 3. On the Solid tab **SOLID** click Extrude  (E).

Step 4. In the Extrude panel set, Fig. 16

Select 2 profiles, Fig. 17

Start Profile Plane

Direction Symmetric 

Measurement Whole Length 

Distance .25

click OK.

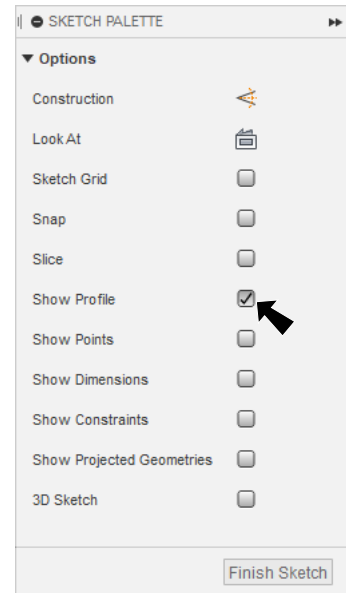


Fig. 15

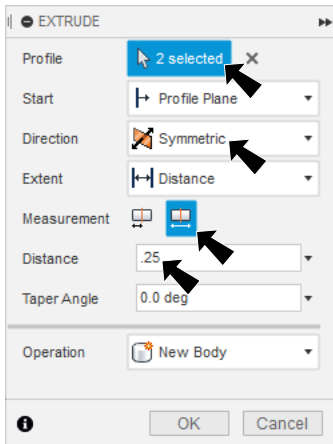


Fig. 16

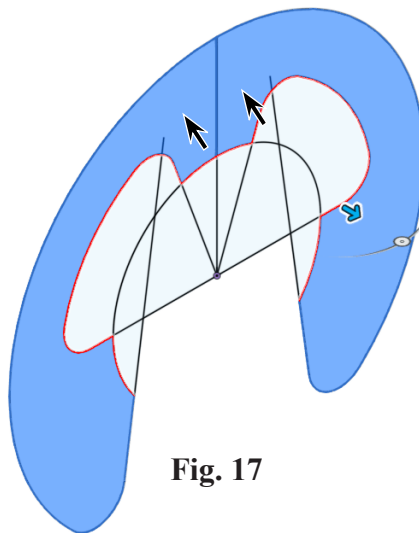


Fig. 17

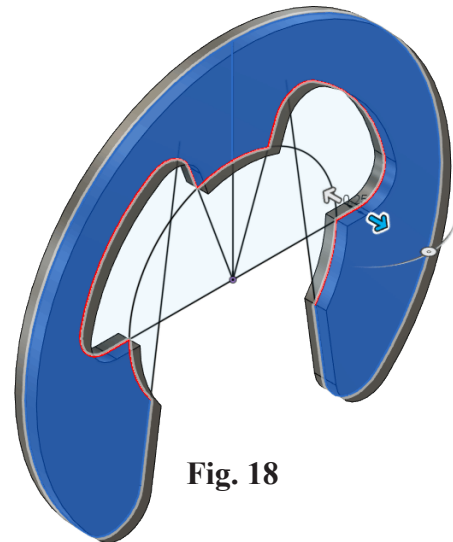


Fig. 18

I. Material Stainless Steel.

Step 1. On the Solid tab **SOLID** click Modify Menu > Physical Material.

Step 2. In the Physical Material Panel:
under Library, **Fig. 19**.
expand **Metal**
scroll down to **Stainless Steel 316L** and drag
onto the body.
Close panel.

Step 3. Save. **Ctrl-S** and press ENTER.

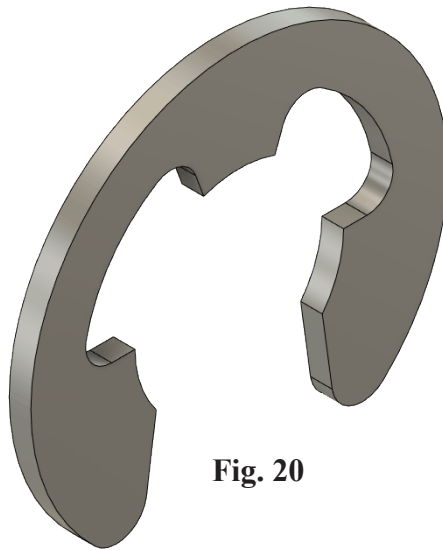


Fig. 20

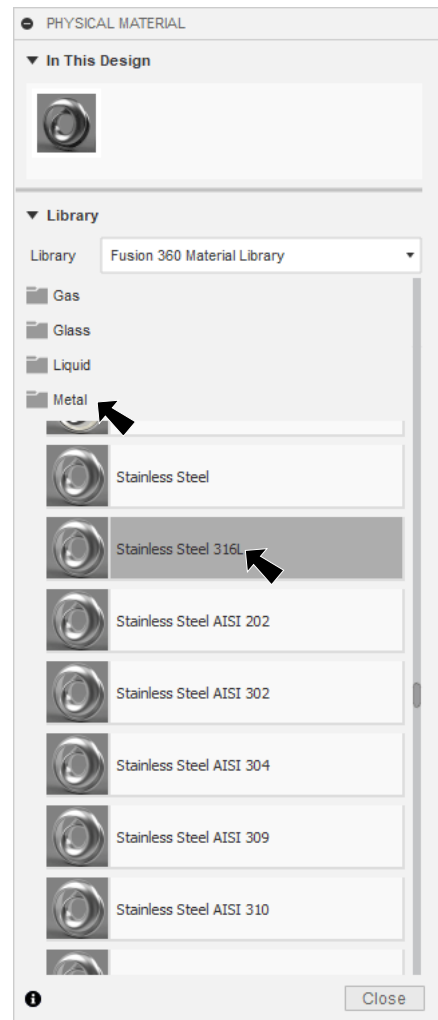


Fig. 19