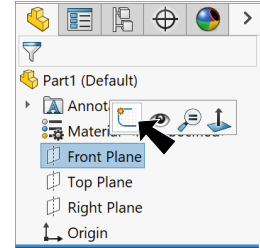


**A. Extrude1.**

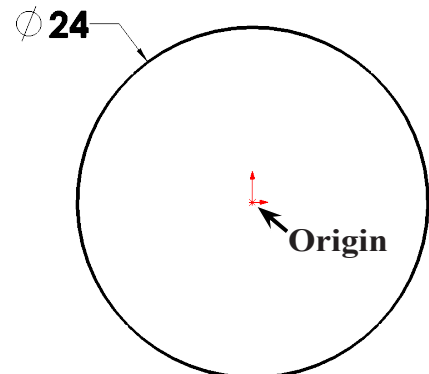
- Step 1. Click File Menu > New, click **Part Metric** and OK.
- Step 2. Click **Front Plane** in the Feature Manager and click **Sketch** on the context toolbar, **Fig. 1**.



**Fig. 1**

- Step 3. Click **Circle** (S) on the Sketch toolbar.

- Step 4. Sketch circle at Origin, **Fig. 2**.



**Fig. 2**

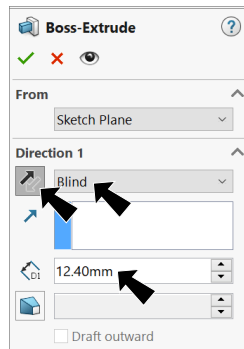
- Step 5. Click **Smart Dimension** (S) on the Sketch toolbar.

- Step 6. Dimension **diameter 24**, **Fig. 2**.

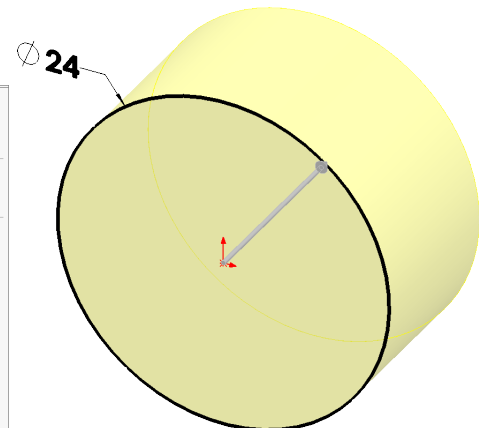
- Step 7. Click **Features** on the Command Manager toolbar.

- Step 8. Click **Extruded Boss/Base** on the Features toolbar.

- Step 9. In the Boss-Extrude Property Manager set:  
 under Direction 1, **Fig. 3**  
 End Condition **Blind**  
 Depth **12.4**  
 Reverse Direction  
 click OK.



**Fig. 3**





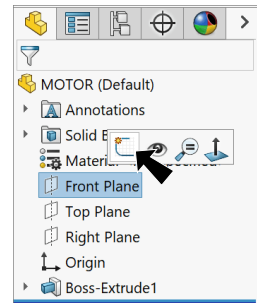
**Fig. 4**

**B. Save as "MOTOR".**

- Step 1. Click File Menu > Save As.
- Step 2. Key-in **MOTOR** for the filename and press ENTER.

### C. Extrude2 Hub.

Step 1. Click **Front Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 5**.



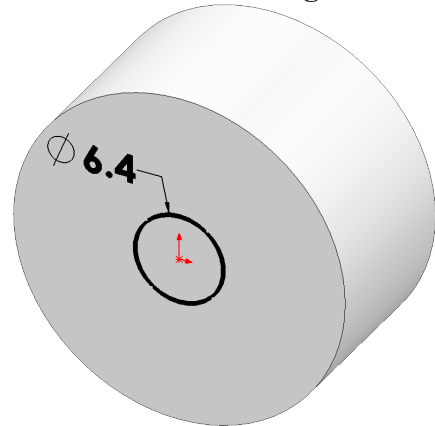
**Fig. 5**

Step 2. Click **Circle**  (S) on the Sketch toolbar.


Step 3. Sketch circle at Origin , **Fig. 6**.

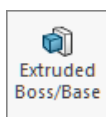
Step 4. Click **Smart Dimension**  (S) on the Sketch toolbar.



Step 5. Dimension **diameter 6.4**, **Fig. 6**.

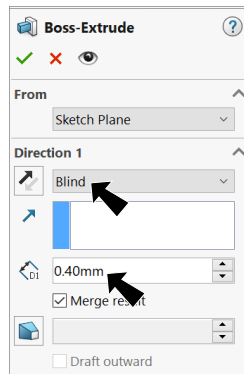


**Fig. 6**

Step 6. Click **Features**  on the Command Manager toolbar.

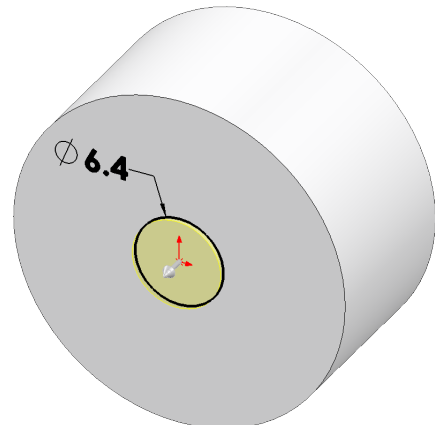
Step 7. Click **Extruded Boss/Base**  on the Features toolbar.

Step 8. In the Boss-Extrude Property Manager set:  
 under Direction 1, **Fig. 7**  
 End Condition **Blind**  
**Depth**  **.4**  
 click OK .





**Fig. 7**

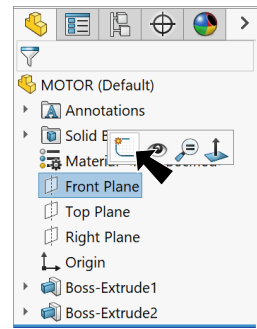
Step 9. Save  (Ctrl-S).



**Fig. 8**

## D. Extrude3 Shaft.

Step 1. Click **Front Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 9**.




**Fig. 9**

Step 2. Click **Circle**  (S) on the Sketch toolbar.

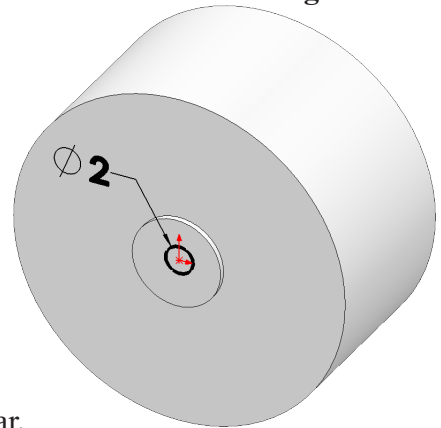
Step 3. Sketch circle at Origin , **Fig. 10**.

Step 4. Click **Smart Dimension**  (S) on the Sketch toolbar.



Step 5. Dimension **diameter 2**, **Fig. 10**.

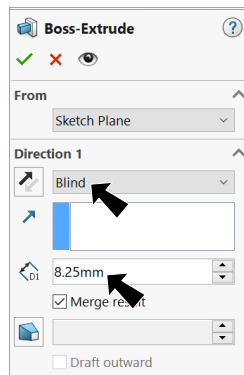
Step 6. Click **Features**  on the Command Manager toolbar.

Step 7. Click **Extruded Boss/Base**  on the Features toolbar.



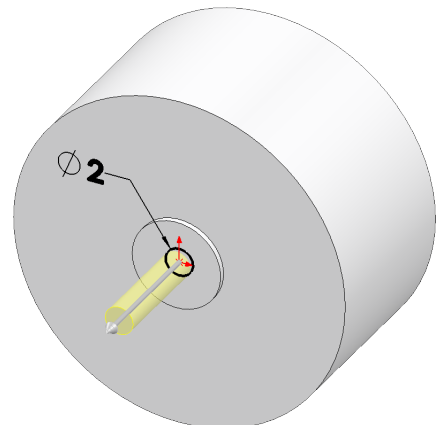
**Fig. 10**

Step 8. In the Boss-Extrude Property Manager set:  
 under Direction 1, **Fig. 11**  
 End Condition **Blind**  
 Depth  **8.25**  
 click OK .




**Fig. 11**

Step 9. Save  (Ctrl-S).



**Fig. 12**

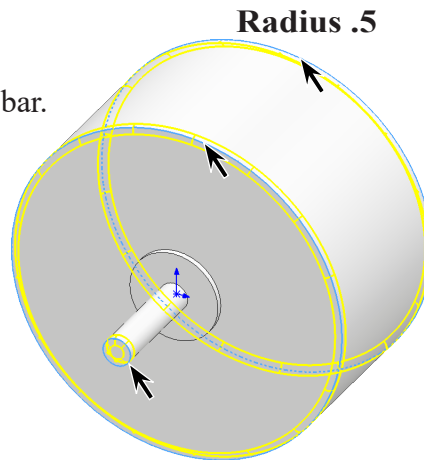
## E. Fillet Edges.

Step 1. Click **Fillet**  on the Features toolbar.

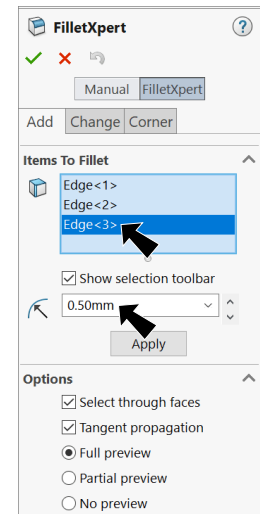
Step 2. In the Fillet Property Manager set:  
select **FilletXpert**, **Fig. 13**

**Radius**  **.5**  
click **circular edges (3)**  
click **OK** .

Step 3. Save  (Ctrl-S).

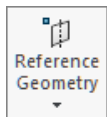



**Fig. 14**



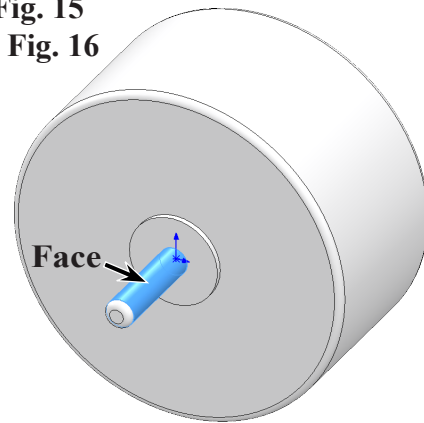
**Fig. 13**

## F. Mate Reference.

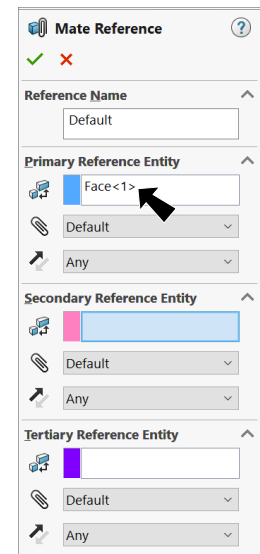
Step 1. Click **Reference Geometry**  on the Features toolbar and **Mate Reference** from the menu.

Step 2. In the Mate Reference Manager:  
under Primary Reference Entity, **Fig. 15**  
click **cylindrical face of shaft**, **Fig. 16**  
click **OK** .

Step 3. Save  (Ctrl-S).





**Fig. 16**




**Fig. 15**

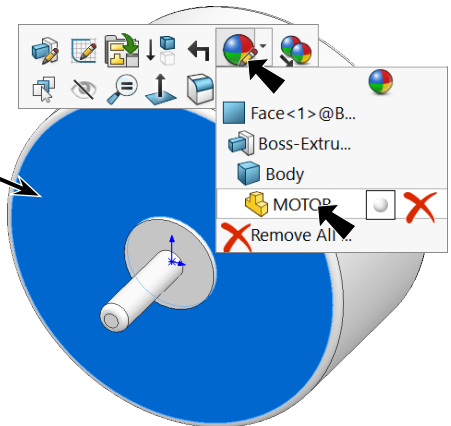
## G. Appearance: Polished Aluminum.

Step 1. Click the Motor to select part, click **Appearances Call-out**  on the context toolbar and click **MOTOR** , **Fig. 17.**

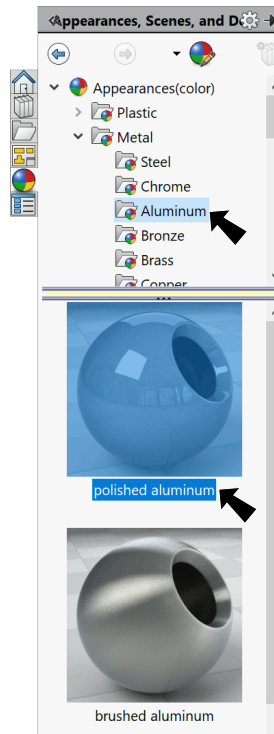
Step 2. In the Appearances Task pane, expand **Metal**, click **Aluminum** and in the lower pane select **polished aluminum**, **Fig. 18.**

Step 3. In the Appearances Property Manager:  
 under Color, **Fig. 19**  
 set **RGB** values:  
**R 170**  
**G 178**  
**B 196**  
 click **OK** .

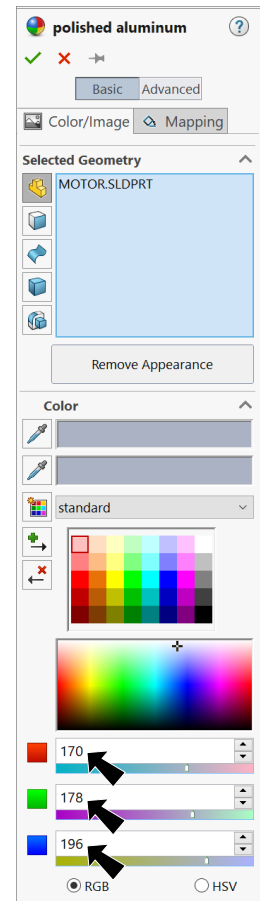
Step 4. Save  (**Ctrl-S**).



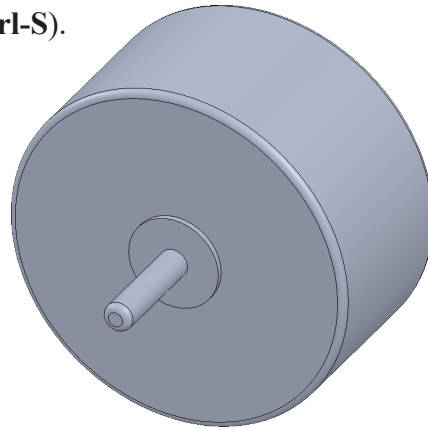
**Fig. 17**



**Fig. 18**



**Fig. 19**



**Fig. 20**