Exercise 54: Mates

Create this assembly by adding components to a new assembly and using mates.

This lab uses the following skills:

- *Creating a New Assembly* on page 406.
- *Adding Components* on page 411.
- *Mating Components* on page 413.

Units: **millimeters**

Procedure

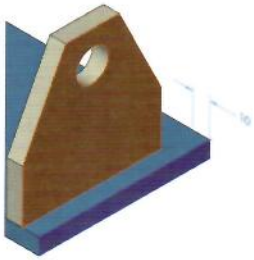
Create a new assembly.

1 Add the component RectBase.

Create a new assembly, using the RectBase part as the base component. It should be fixed at the assembly origin.

2 Add the EndConnect.

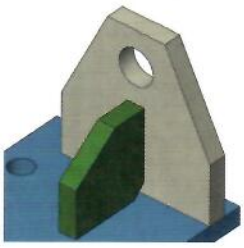
Add an instance of the EndConnect to the assembly. **Mate** it to the RectBase using a distance of **10mm** and two coincident mates as shown.

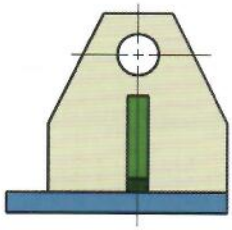


3 Add the Brace.

Add an instance of the Brace to the assembly. **Mate** it to the RectBase using coincident mates as shown.

The Brace is centered on the hole in the EndConnect component.



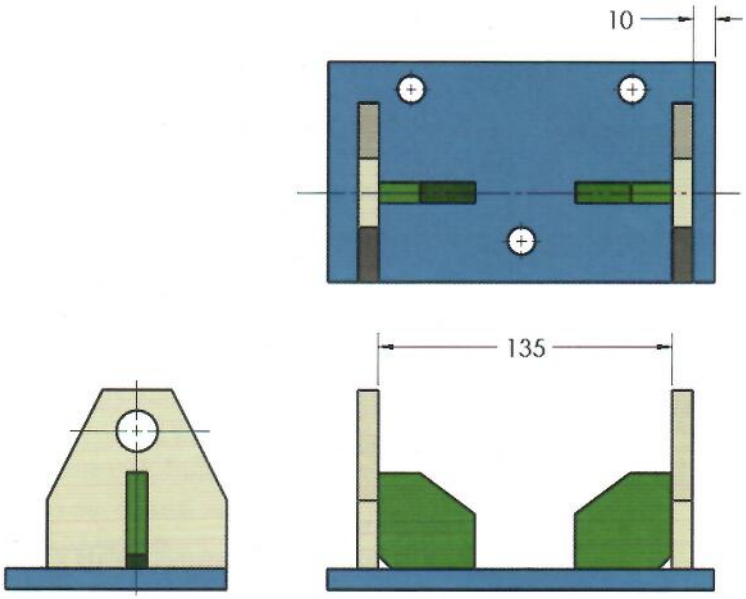


Tip

Coincident mates between planes or Width mates can be used to center components.

4 Additional components.

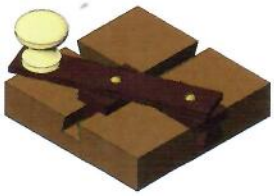
Add more instances of the Brace and EndConnect components, placing them as shown.



5 Save and close all files.

Exercise 55: Gripe Grinder

Assemble this device by following the steps as shown.



This lab uses the following skills:

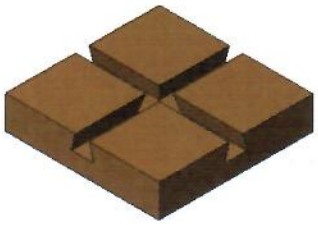
- *Creating a New Assembly* on page 406.
- *Adding Components* on page 411.
- *Mating Components* on page 413.
- *Dynamic Assembly Motion* on page 424.
- *Smart Mates* on page 433.

Units: **millimeters**

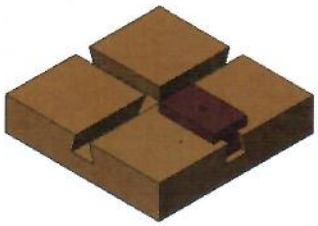
Procedure

Create a new assembly.

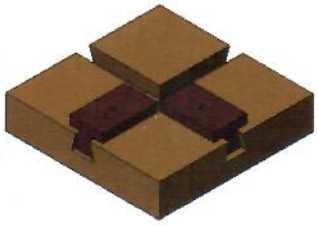
1 **Add the component Base.**
Create a new assembly, using the Base part as the base component. It should be fixed at the assembly origin.



2 **Add the Slider.**
Add the Slider to the assembly. **Mate** it to one of the dovetail slots. A width and coincident mate are required.

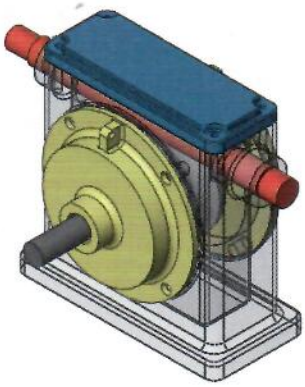


3 **Add a second copy of the Slider.**
Mate it to the other dovetail slot. Both Sliders should be free to move back and forth in their respective slots.



Exercise 56: Using Hide and Show Component

Create this assembly by using mates.



This lab uses the following skills:

- *Creating a New Assembly* on page 406.
- *Adding Components* on page 411.
- *Mating Components* on page 413.
- *Component Hiding and Transparency* on page 429.
- *Smart Mates* on page 433.

Units: **millimeters**

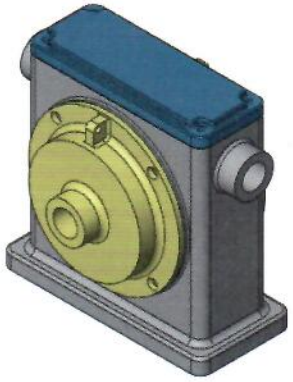
Procedure

Create a new assembly.

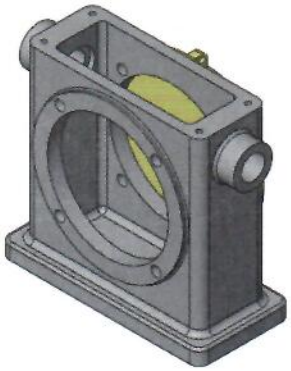
1 **Create assembly.**
Open the Housing component found in the Gearbox Assy folder. Use **Make Assembly from Part/Assembly** to create a new assembly with the Assembly_MM template. It should be fixed at the assembly origin.

2 **Add the components.**
Drag or insert the remaining component parts into the assembly.

3 **Mates.**
Mate the Cover Plate and both Cover_Pl&Lug components to the Housing as shown.



4 **Hide.**
Hide the Cover Plate and one of the Cover_Pl&Lug components as shown.

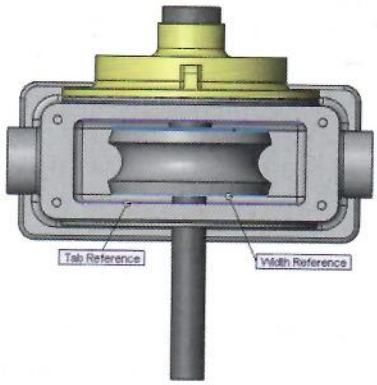


5 Add more components.

Add the Worm Gear Shaft and Worm Gear components as shown.

Tip

Mate the Worm Gear to the Housing using a **Width** mate.



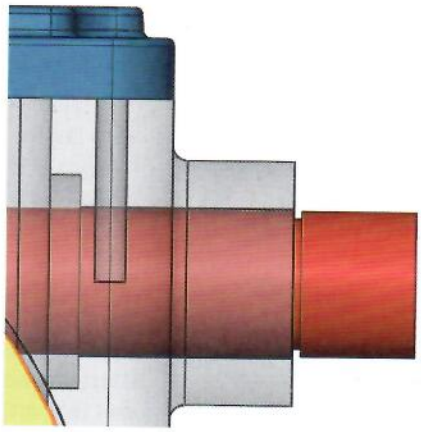
6 Detail.

Show the hidden components. Use **Change Transparency** to change the appearance of the Housing.

Add the Offset Shaft component and mate it.

Tip

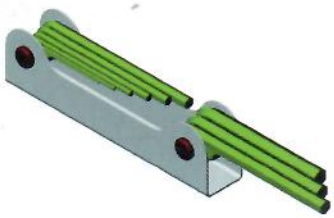
A detail for mating the Offset Shaft to the Housing is shown at right.



7 Save and close all files.

Exercise 57: Part Configurations in an Assembly

Using the parts included, complete this bottom up assembly. Use several configurations of the same part in the assembly to create a set of allen wrenches.



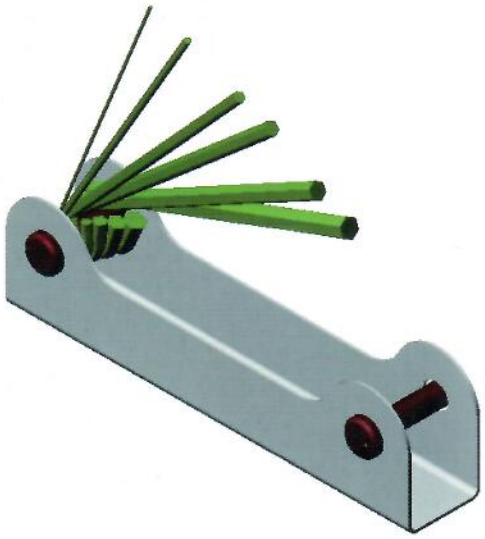
This lab reinforces the following skills:

- *Adding Components* on page 411.
- *Mating Components* on page 413.
- *Using Part Configurations in Assemblies* on page 424.
- *Opening a Component* on page 426.

Procedure

Open an existing assembly.

1 **Existing assembly.**
Open the assembly `part configs` found in the `part configs` folder. The assembly contains three components, two of which have multiple instances. One component, the `Allen Wrench`, uses a different configuration for each instance.



2 **Open part.**
Select any instance of the `Allen Wrench` component and open the part.

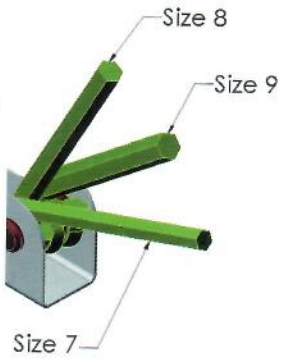
3 Configuration.
Use the values in the Length column for each configuration as shown.

	Length
Size01	50
Size02	60
Size03	70
Size04	80
Size05	90
Size06	100
Size07	100
Size08	90
Size09	80
Size10	100

Tip

Use the **This Configuration** option to change only the active configuration.

4 Add and mate components.
Add and mate three more components, noting the configurations of the Allen Wrench parts. The sizes, positions and part names are detailed in the accompanying illustrations.



5 Save and close all files.