Autodesk **Skill Builders**

A Skill-building Exercise

Derived Parts - part 2

In This Exercise

This example uses a bottle mold to illustrate a likely application of derived parts. The intent is to help you become more familiar with derived parts and to better recognize when it might be to your advantage to use a derived part.

Note: If you are unfamiliar with the fundamentals of how to create and modify a derived part, you may want to first take a look at Skill Builder Derived Parts - part 1.

Design Variations with Derived Parts

Tip: Consider creating a project to easily access any practice parts you may create for this exercise.

The requirement: Create a mold to form glass bottles. The mold halves are exact mirrors except for the thread feature on the bottle neck. The mold halves must be associative yet preserve the uniqueness of the threads.

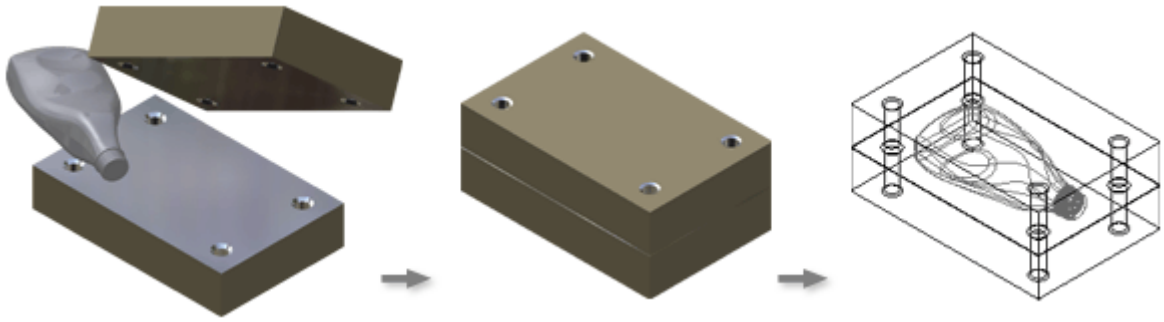
The solution: Derived parts.

You can use derived parts to quickly produce the bottle cavity within the two mold halves, make any changes in the parent components common to both halves, and at the same time, maintain the uniqueness of the threads.

First, create a blank for the bottle. Save the part.

Create a blank for the mold half. Save the part.

Create a new assembly. Add two instances of the mold half, add the bottle, and constrain the parts. Save the assembly.



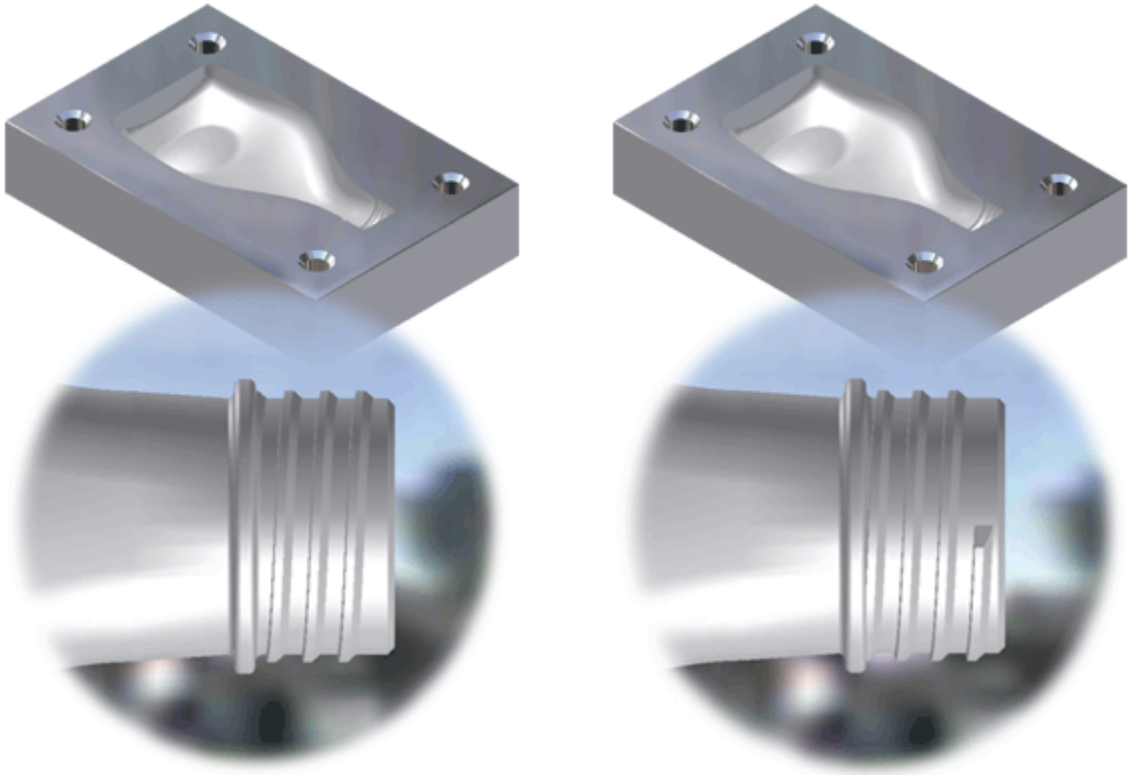
Begin an new part, exit the blank sketch, and then click the Derived Parts tool.

Select the assembly. Specify the Exclude icon for the first instance of the mold half. Specify the Include icon for the second instance of the mold half. Specify the Exclude/Subtract icon for the bottle. Click OK and save the derived part.

Begin an new part, exit the blank sketch, and then click the Derived Parts tool.

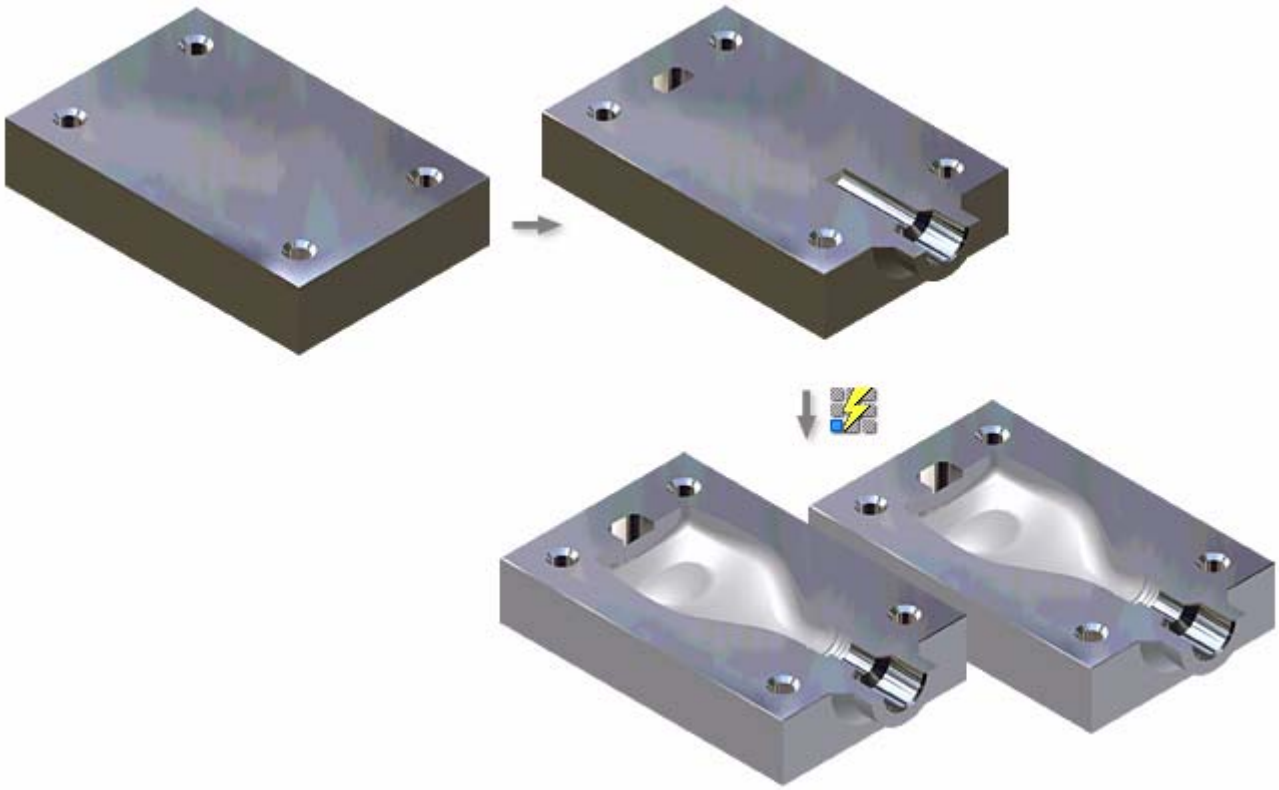
Select the assembly once again. Specify the Exclude icon for the **second** instance of the mold half. Specify the Include icon for the **first** instance of the mold half. Specify the Exclude/Subtract icon for the bottle. Click OK and save the derived part.

You now have two unique mold halves.

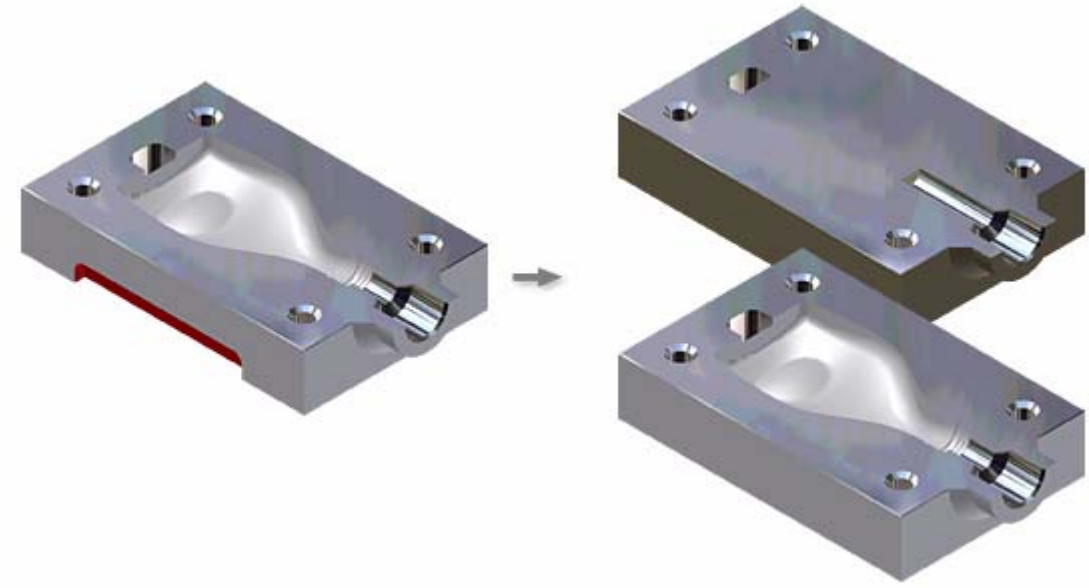


The mold halves are associative to the parent components. You can change either the bottle blank or the mold blank, and then update the derived parts to pick up the change. To demnostrate, let’s add a port for

the injection nozzle and a slot for a pressure relief mechanism to the parent mold blank. The change is reflected in both derived parts.



Because the associativity flows in one direction only (from the parent components to the derived parts) you can change either derived mold half without affecting the parent components or other related derived parts.



After the design of this particular mold is finalized or retired, you can break the link between the parent assembly and the derived parts so you can modify the bottle blank for design variations without affecting the original derived mold halves.

In summary, one advantage of derived parts is that they facilitate your design intent. You can make quick, associative, global changes (just as you would when working in a regular Autodesk Inventor part or assembly) yet preserve intact features unique to a single derived part.