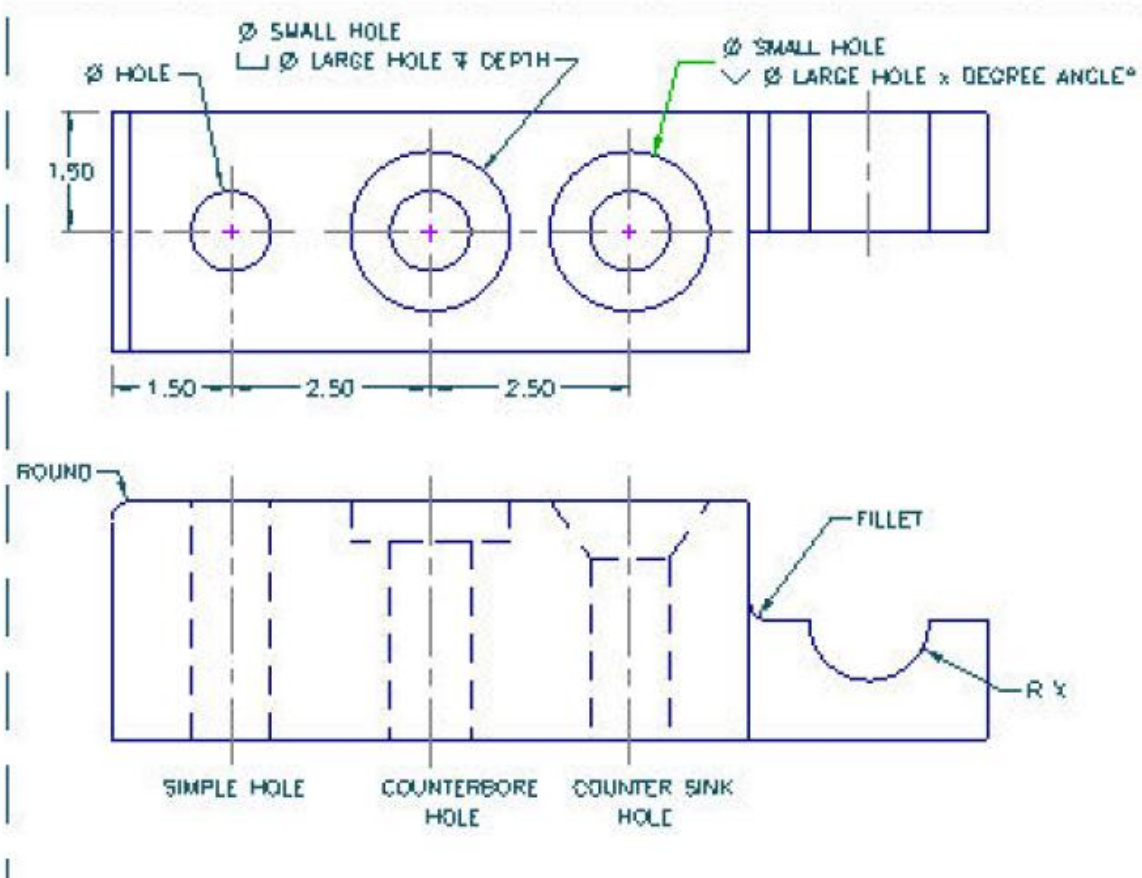


Counterbore Tutorial

This tutorial is designed to show how to create a Counterbore hole in two different ways.

1. Creating 2 Extrudes
2. Using the Hole Tool

Types of Holes



Extrudes

When creating a Counterbore hole it does not matter which hole you cut first when using CADD software. When cutting a real Counterbore hole in a piece of metal or wood then the user should always cut the large hole first then the smaller hole.

A. Hole One

1. Select extrude select your surface to work on
2. Draw a circle that represents the large hole or small hole
3. Change the diameter of the circle and locators to correct size
4. Green Check
5. Set depth of hole and cut in the correct direction (Note Small Hole typically goes all the way through and large hole has a depth)
6. Green Check to accept

B. Hole 2

1. Select Extrude second time
2. Select surface to work on
3. Use the reference tool to select the preexisting circle (this will allow you to snap to the center of the circle to make it concentric to the original). You should only have to adjust the diameter of the hole.
4. Green Check
5. Set the depth and cut
6. Green Check

Hole Tool

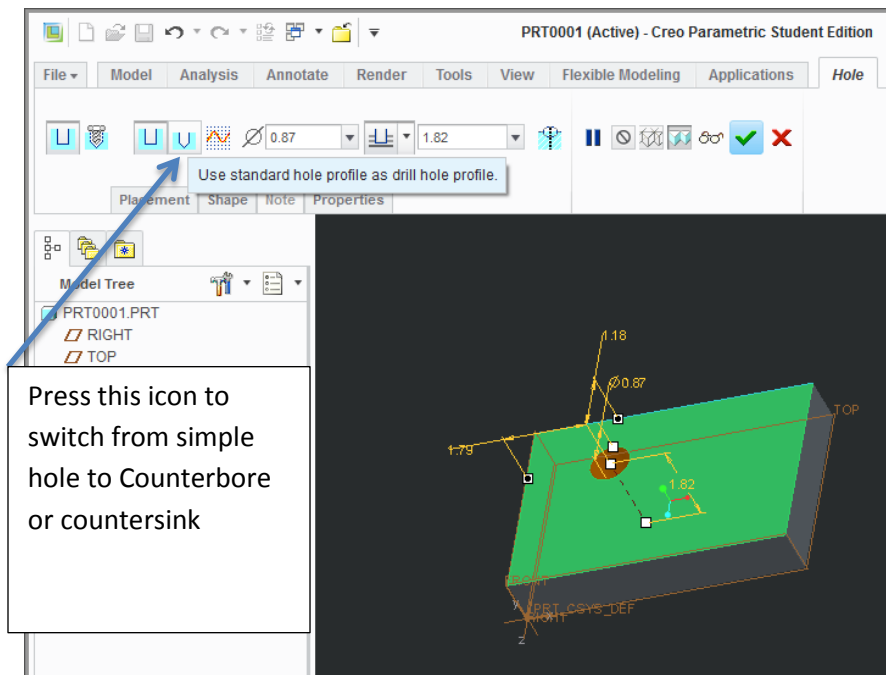
1. Select Model Tab > Hole Tool

2.

The screenshot shows the Hole Tool interface with several callouts:

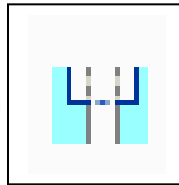
- Creates Simple**: Points to the top-left icon.
- Counterbore and Countersink**: Points to the top-middle icon.
- Diameter of Hole**: Points to the top-right icon.
- Creates Threaded Holes**: Points to the bottom-left icon.
- Placement: Adjusts locaters of the hole**: Points to the Placement tab.
- Shape: Shows 2D Representation of the hole to help set the values**: Points to the Shape tab.
- Depth of Cut in a Blind Cut**: Points to the depth input field.
- Type of Hole Cut**: A dropdown menu with the following options:
 1. Blind
 2. Symmetric about Datum
 3. Drill up to Next Surface
 4. Drill Through All
 5. Drill to Intersection of Surface
 6. Drill to Selected Surface

- Place locators on the edges, datums or points to be measured from



Press this icon to switch from simple hole to Counterbore or countersink

- Select the Counterbore icon

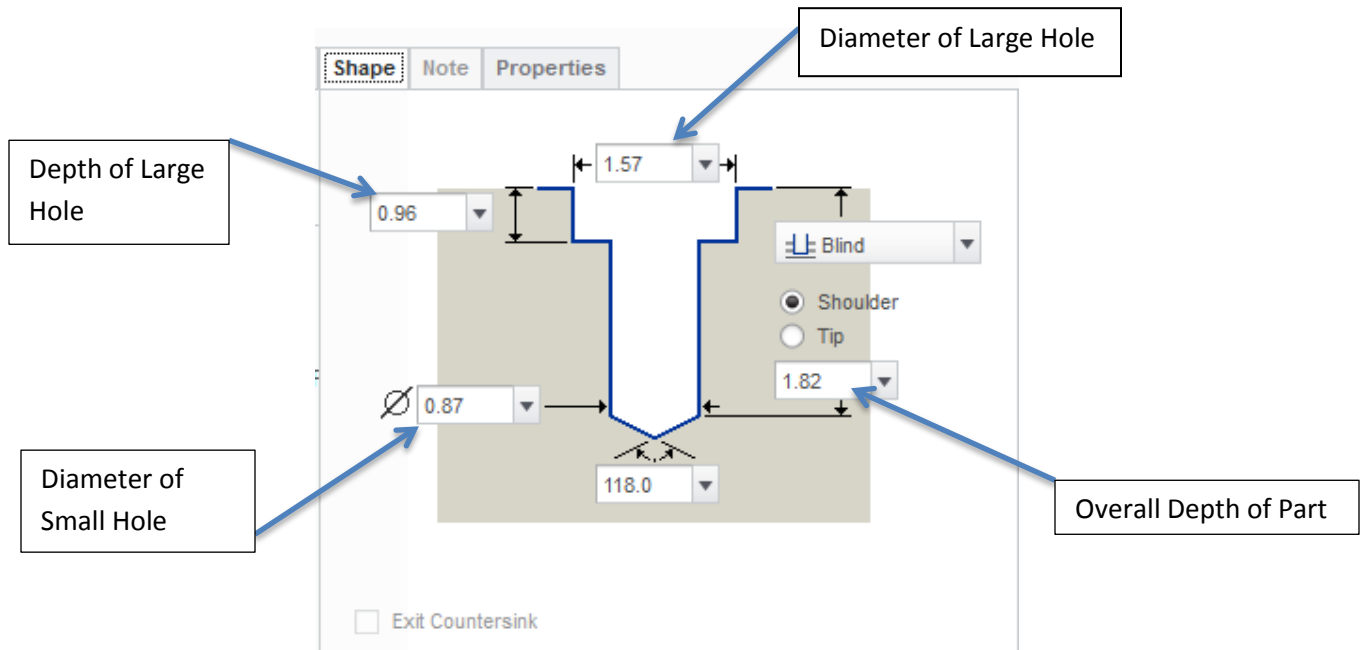


(NOTE This symbol is for countersink)



5. Select the Shape Tab in the Info Bar: This will show you your measurements in graphical form
(NOTE You can also change the values on the part)

Shape Menu Looks as follows



6. Green Check (If you are unable to green check out then you did not set the locator dimensions)