KEYCREATOR®

Doctor Walt's™

Tips And Tricks

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FREEDOM AND PRECISION

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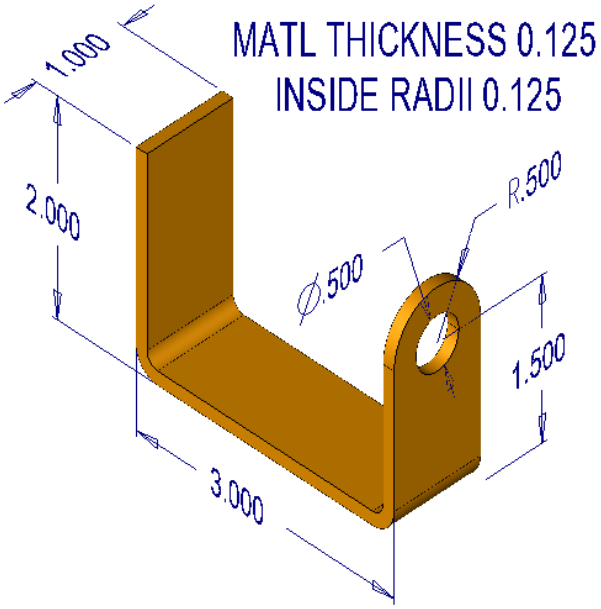
Creating Easy L and U Shapes
Using Fast Shell

I find that many users work way too hard when modeling solid objects. Creating basic L and U shapes presents a perfect example of this.

Let's use the simple U-shaped bracket to the left as an example.

This finished part is available for download as "Ubracket02."



Many users build this part by first constructing a profile in view 2 (the front view.) that looks like the one illustrated to the left. (In fact many instructors teach this as the way to make this kind of part!)

Trust me, there's a much easier way to get the job done that you want to use if you intend to be a master modeler!

Let's work through the steps using a technique that I invented years ago and that we call "Fast Shell."

We'll start with a new file in the default View 1. (The top view.)

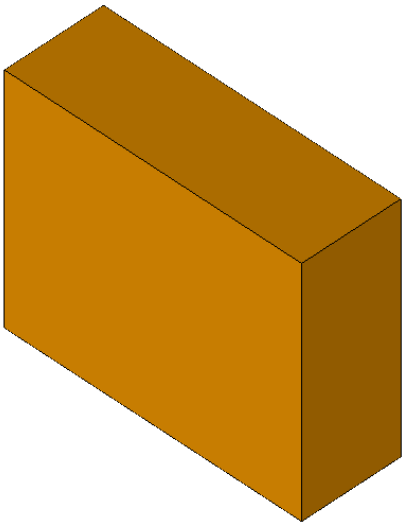
Click on the CREATE RECTANGLE BY WIDTH HEIGHT Icon and make a rectangle that is 3 inches wide by 1 inch high.

Use any anchor position and with the CURSOR Option selected click anywhere on the display to place the geometry.

Then, switch to the Isometric View (View 7.) and Autoscale the display.

Next, click on the EXTRUDE Icon.

When the Dialog Box appears, type 2 for the Length, use 0 Draft, and hit the ENTER Key.



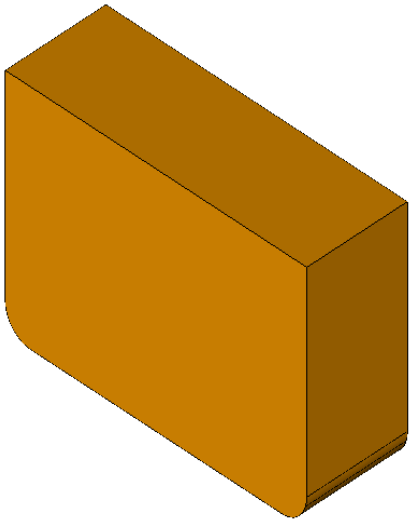
Now select the entire rectangle and select either the up or down vector that appears on the profile to complete the extrusion.

You will now have a simple block on the screen. (Note that you could have alternatively used the Primitive Block function to get to this same point.)

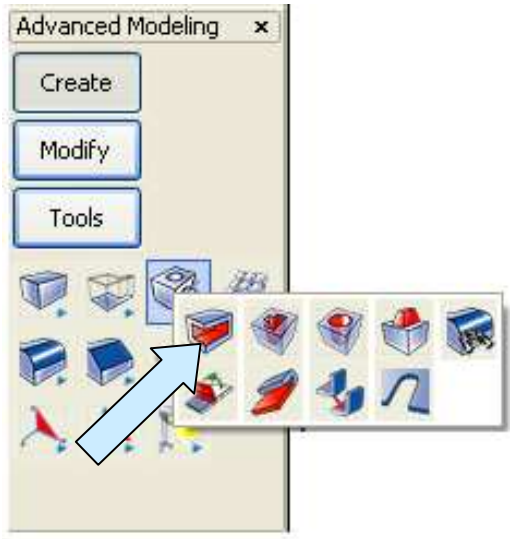
Think of this block as the smallest piece of stock that you could use to machine out the final part that you want.

Now, click on the CONSTANT RADIUS BLEND Icon.

Type 0.25 for the radius value and select the two bottom, short edges on the block. Hit the ENTER Key.

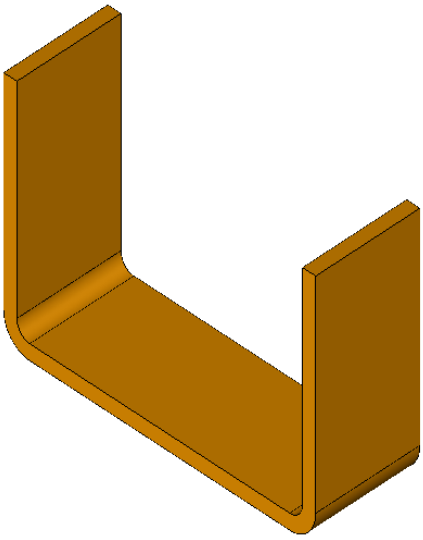


Your part will now look like this:



Now, click on the SHELL Icon.

A Dialog Box appears. Type 0.125 for the shell thickness and use the Select Faces to be Open Option. Hit the ENTER Key.

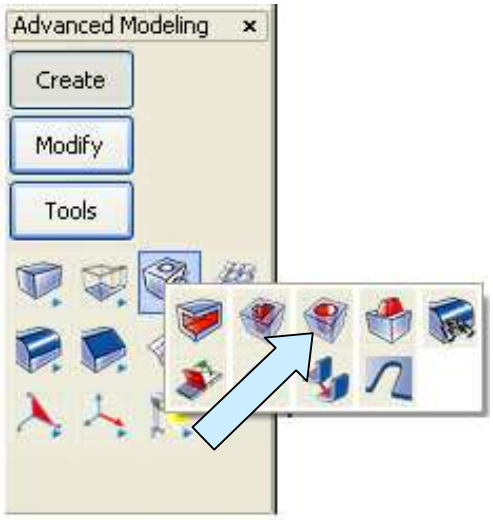


Now, select the front face, the top face, and the hidden rear face of the part. Use your face selector toggle (Either the SPACEBAR or the TAB Key.) to get to the hidden rear face. When all three faces are selected, hit the ENTER Key.

Your part will now look like this:

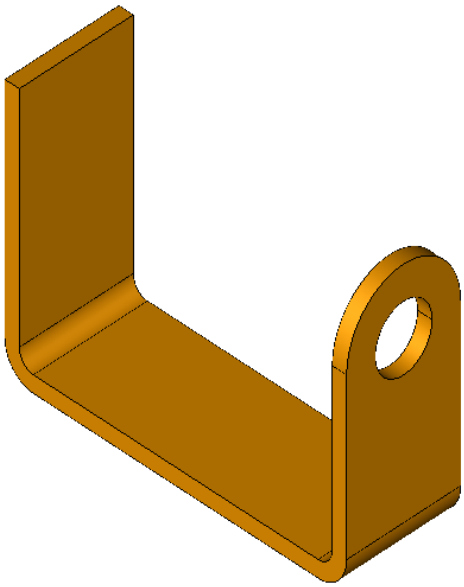
Click on the CONSTANT RADIUS BLEND Icon.

Type 0.5 for the Radius and select the two short edges on the top of the right leg.



Then, click on the DRILL Icon.

Type 0.5 for the diameter, use the Up to Next Face Option and hit the ENTER Key.



Now, select the right side surface of the part and using the CTR/MID Option click on the top radius to center the hole on the end of the part.

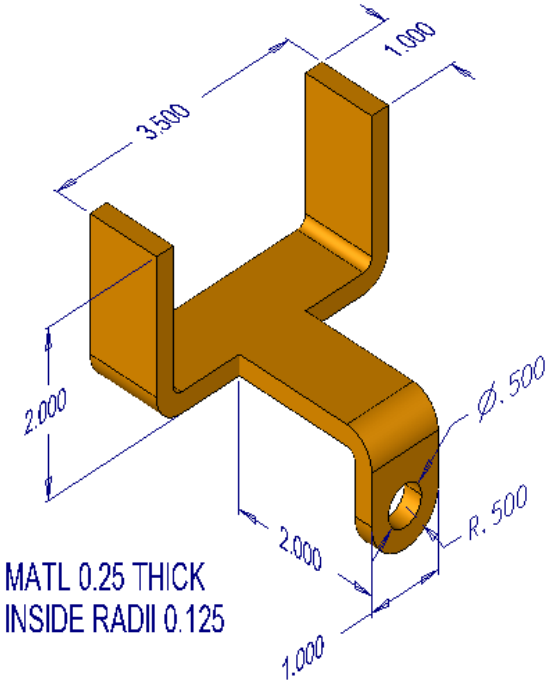
Your final part should look like this:

Now that was a heck of a lot easier then the traditional approach to making the part! You can use this approach for any U or L shaped parts or parts that combine these shapes. To give you an idea of how fast this approach is, let's take a look at a part that contains both a U shape and an L shape.

Let's look at the part illustrated to the right. The finished part is available for download as "Bracket03."

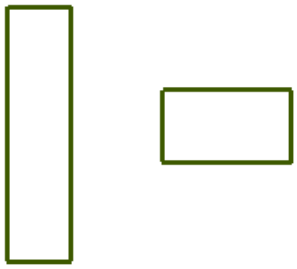
Now using the traditional approach to modeling this part, you would have to create a U-shaped profile in the right side view and an L-shaped profile in the front view to create the two extrusions that make up the part.

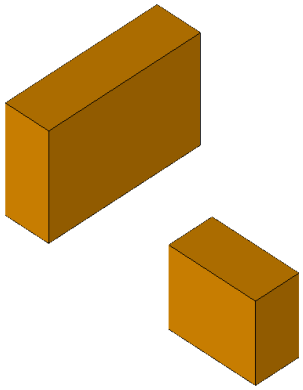
We're going to eliminate all of that work with the Fast Shell approach.



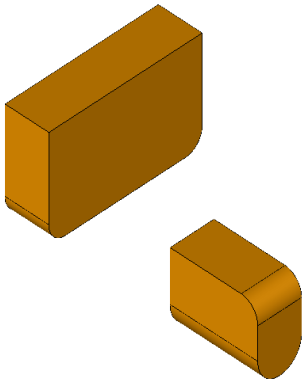
Since this is the second time using Fast Shell, I'm just going to give you a bullet list approach to the problem.

STEP ONE: In View 1 create a rectangle that is 1 inch wide by 3.5 inches high. Create a second rectangle to the right of it that is 2 inches wide by 1 inch high.



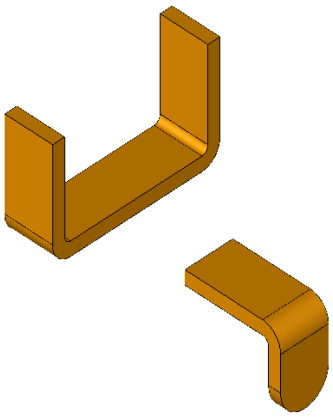


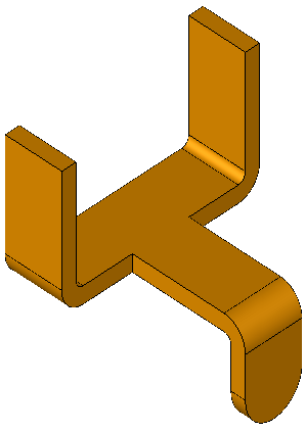
STEP TWO: Extrude the first rectangle 2 inches and the second rectangle 1 inch.



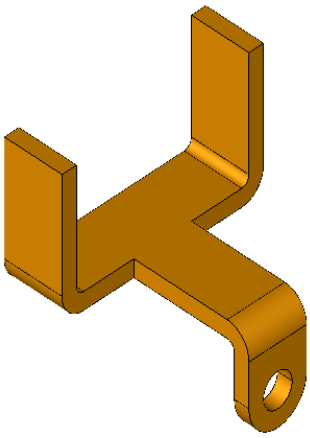
STEP THREE: Put 0.375 radius blends on the two short, bottom edges of the larger solid and the top, right edge of the smaller solid. Next, create a 0.5 radius blend on the two long bottom edges of the smaller solid.

STEP FOUR: Now use the SHELL Function to shell both parts so the left one becomes an upright U shape and the right one becomes an inverted L shape.





STEP FIVE: Use the GENERIC MOVE Tool to position the smaller part centered on the right edge of the larger solid. Use the BOOLEAN UNION to join the parts.



STEP SIX: Use the DRILL Function to make the hole.

You can see how you can combine multiple U and L shapes to make many different parts with a minimum of effort. Once you get used to this approach, you'll never want to create trimmed out U and L profiles again!