

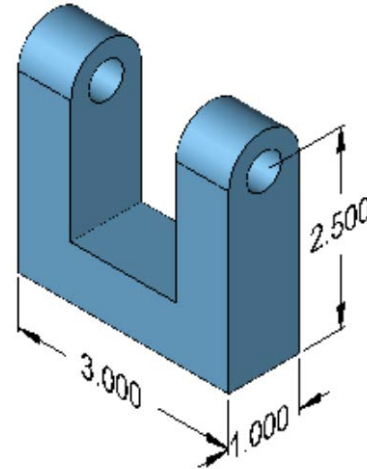
KEYCREATOR 3D Direct Modeling Software

KeyCreator Lesson KC3701

Dynamite Dynamic Modeling!

The first lesson in our dynamite dynamic modeling series is the simple “U-shaped” block illustrated to the right.

Unlike traditional modeling where we start with a defined two dimensional profile that is then extruded a defined distance, in dynamic modeling we quickly sketch out a shape in 3D and then drive it with dimensions later. This approach is great when you want to quickly create conceptual parts!



Start with a new file in the Isometric View (View 7.) with a construction plane assigned to the Top View. (View 1.)

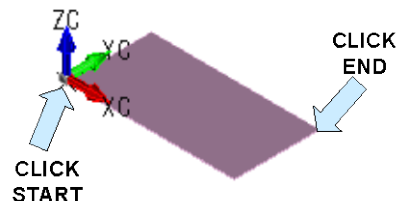
Click on the BLOCK Icon.

A Dialog Box appears.

Click on the Sketch Option and use the current Cplane Axis. Hit the ENTER Key.

Click near the origin and then move the cursor to the right and up.

A dynamic rectangular face grows on the screen.



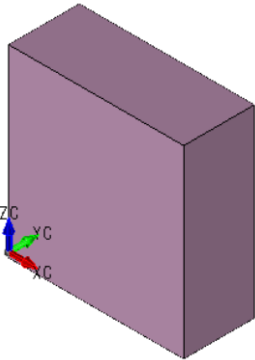
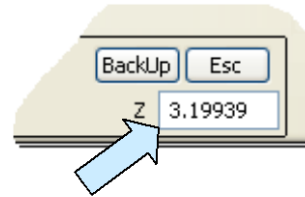
If you look at the Status Bar at the bottom of the screen, you can see the X and Y values of the dynamic face. Click to place the opposing corner when the X value is about 3 inches and the Y value is about 1 inch.

Note: The X and Y values are just approximations. You want to get in the habit of sketching to about the final size you want. Then, when you place driving dimensions on the part, things won't move around so much on the screen. (For instance if you make the part much smaller than needed and place a driving dimension, when you edit the dimension to make it larger you will then find it sitting inside the volume of the part!)

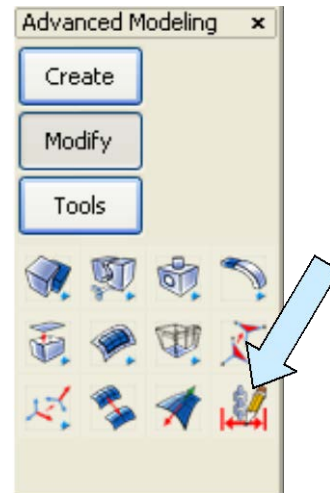
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After you click to place the second corner of the rectangular face, move the cursor upward and a block will grow on the screen.

Look up near the Conversation Bar and you will see a Z value. Click when the Z value is about 3 inches.

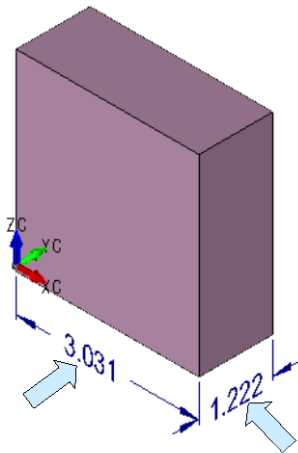


Your screen should look like this:



Click on the DIMENSION DRIVEN EDITING Icon.

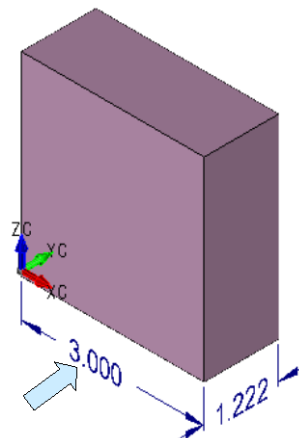
Note: Because this is such an important function, a copy of this Icon is on the default main toolbar at the top of your screen. I show it at red in the location in the Advanced Modeling Palette.



Click on the bottom, front edge, move the cursor downward and click to place a dimension.

Next, click on the bottom, right edge, move the cursor downward and click to place a dimension.

With the Dimension Driven Editing Function active, click on the front dimension and type 3 for the desired value. Hit the ENTER Key and notice that the block rebuilds to exactly 3 inches in width.



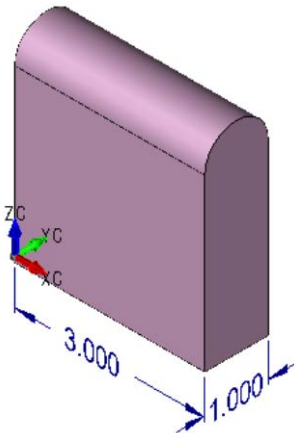
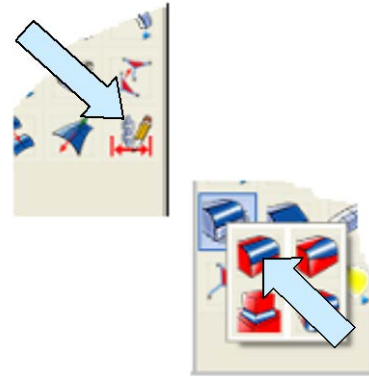
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Note: For our current situation it isn't important, but if you experiment you'll find that clicking on the dimension text makes the block adjust by an equal amount on both ends. If you click on the right arrow of the dimension, all of the adjustment occurs on the right end. (You can get the opposite effect by clicking on the left arrow.) You'll find this property very useful in later modeling exercises!

Use the Dimension Driven Editing Tool to make the depth dimension exactly 1 inch.

Now, click on the CONSTANT RADIUS BLEND Icon. A Dialog Box appears.

Type 0.5 for the Radius and hit the ENTER Key.



Click on the two, long top edges of the solid block and hit the ENTER Key.

Your screen should now look like this:

Click on the CONSTRUCTION PLANE Icon.



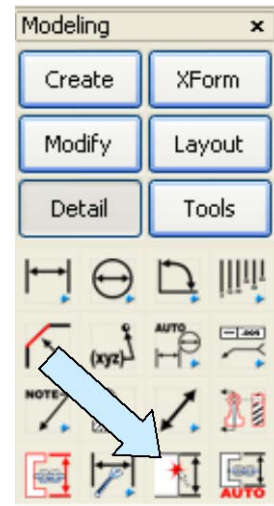
Now, click on the front end of the bottom, right edge of the block. Then, click on the bottom end of the front, right edge of the block.

Now, click on the QUICK DIMENSION Icon.

Using the EndEnt Option, click on the bottom, rear, right corner of the block.

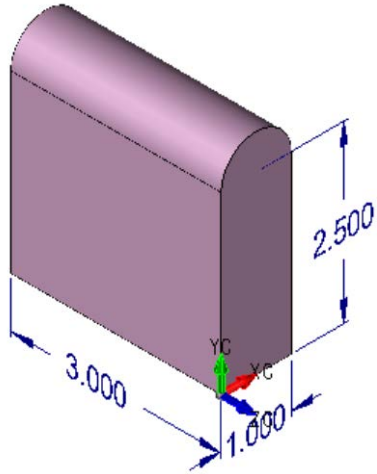
Then, using the CtrMid Option, click on the top, right curved edge of the block.

Move the cursor up to the right and click to place a vertical dimension.

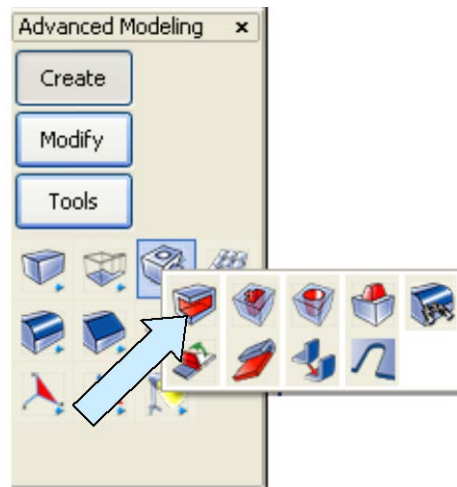


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Now this dimension was created using the Quick Dimension detailing tool. However, we can click on the DIMENSION DRIVEN EDITING Icon, click on this dimension, and type a value of 2.5 inches to drive the height of the block. (This flexibility makes dynamic conceptual modeling in KeyCreator very easy!)

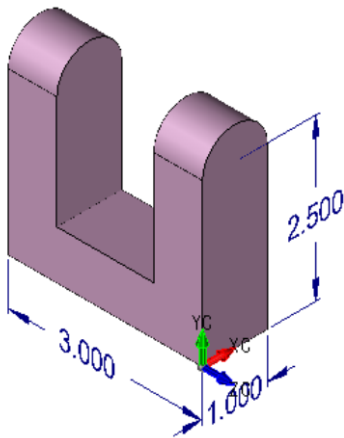


Your model should now look like this:



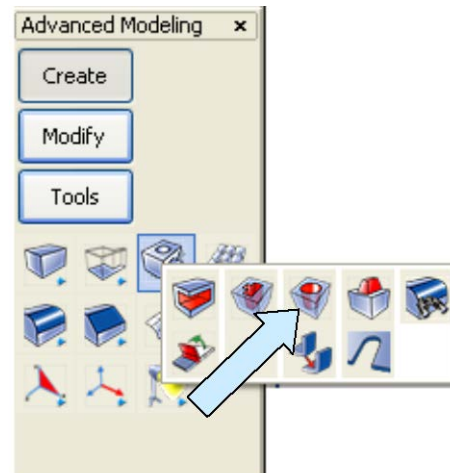
Click on the SHELL Icon.

A Dialog Box appears. Type 0.75 for the Shell Thickness and hit the ENTER Key.



Click on the front face, the curved, top face, and the hidden, rear face. Then, hit the ENTER Key.

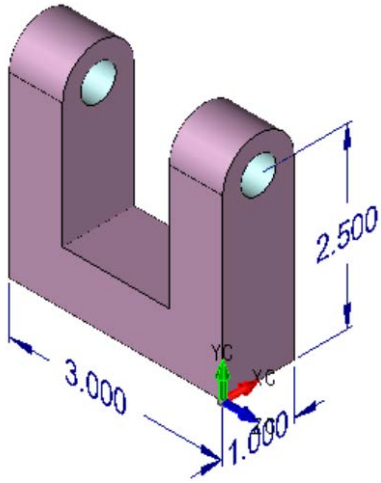
Your part should now look like this:



Now, click on the DRILL Icon.
A Dialog Box appears. Click on the Through Option and type 0.501 for the diameter.

Hit the ENTER Key.

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Click on the right side face of the part.

Then, using the CtrMid Option, click on one of the top curved edges of the part.

Your completed “U-Block” should look like this: