



Part 3 of the iLogic Vessel Tutorial continues with the development of the shell. The objective will be to create a shell that is driven by the dimensions in the parent assembly. Once complete, you will understand how to use parameters, and dimensions to control the shell for use in iLogic vessel assemblies.

Create a new part using *%ProgramFiles%\Autodesk\Inventor 2011\Templates\Vessels\vessel.ipt* as the template. Save the file as *Shell.ipt*.

You can download the files [here](#). Extract the contents to the iLogicTutorial workspace.

### Shell Parameter Configuration

1. Open the Parameters Dialog box
  - a. Delete the Type Parameter, as it is not required for the Shell
  - b. Add the Seam to Seam Length Parameter
    - i. Click *Add Numeric*
    - ii. Parameter Name: LEN
    - iii. Unit/Type: ft
    - iv. Equation: 3
    - v. Key: Checked
    - vi. Export: Unchecked
    - vii. Comment: Vessel Seam to Seam Length
  - c. Add the Skirt offset length
    - i. Click *Add Numeric*
    - ii. Parameter Name: SKOFS
    - iii. Unit/Type: in
    - iv. Equation: -6
    - v. Key: Unchecked
    - vi. Export: Unchecked
    - vii. Comment: Vessel Skirt Offset Distance
  - d. Click *Done*

## Shell Parameter Configuration

Your Parameters Dialog box should look like the one in the diagram.

The screenshot shows a 'Parameters' dialog box with a table of parameters. The table has columns for Parameter Name, Unit/Type, Equation, Nominal Value, Tol., Model Value, Key, Ex, and Comment. The parameters listed are OD, THK, LEN, and SKOFS. The SKOFS parameter is highlighted in blue.

Parameter Name	Unit/Type	Equation	Nominal Value	Tol.	Model Value	Key	Ex	Comment
Model Parameters								
User Parameters								
OD	in	24 in	24.000000	Yellow	24.000000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Vessel Outside Diameter
THK	in	0.5 in	0.500000	Yellow	0.500000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Vessel Shell Thickness
LEN	ft	3 ft	3.000000	Yellow	3.000000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Vessel Seam to Seam Length
SKOFS	in	-6 in	-6.000000	Blue	-6.000000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Vessel Skirt Offset Distance

Below the table, there is a background pattern of mathematical equations including  $E = mc^2$ ,  $P + \rho \times \frac{1}{2} v^2 = C$ ,  $F = G \times M \times n \div d^2$ , and  $\Delta S_{universe} > 0$ . At the bottom of the dialog, there are controls for 'Add Numeric', 'Update', 'Link', 'Immediate Update', 'Reset Tolerance' (with color-coded buttons: +, green triangle, yellow circle, -), '<< Less', and 'Done'.

### Define Shell

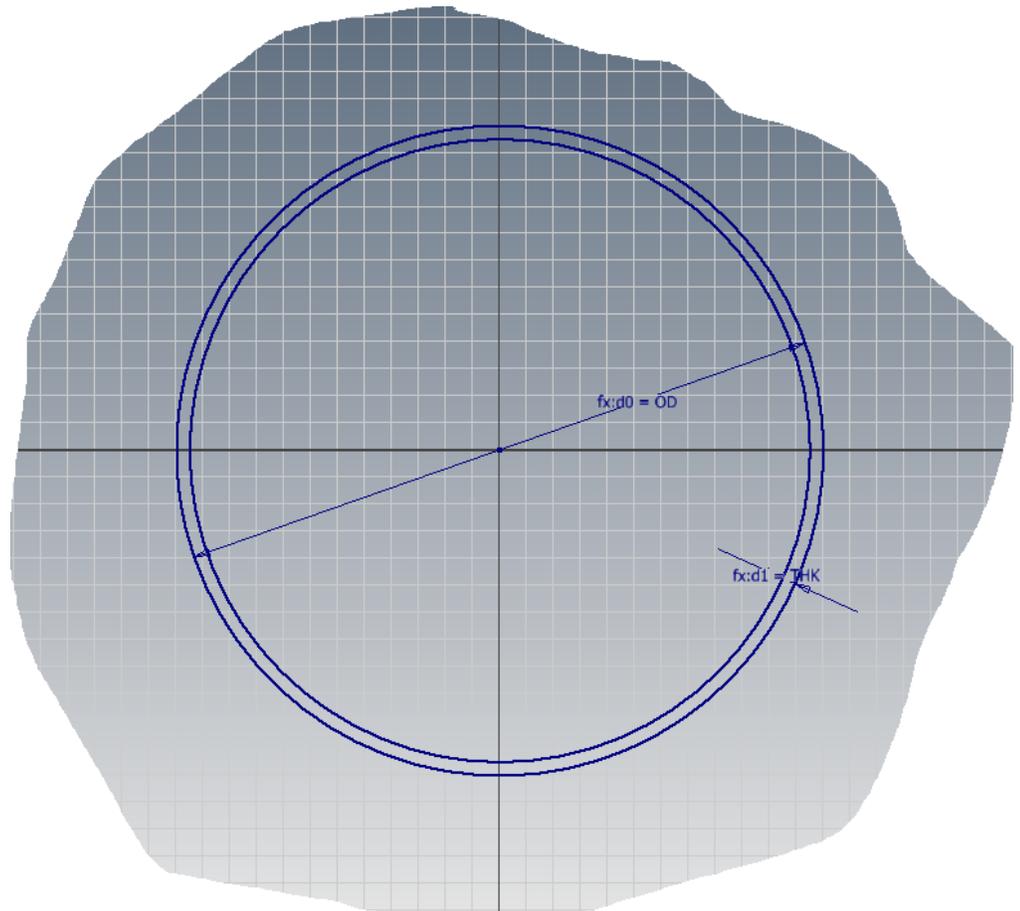
Create a new sketch, or redefine *sketch1* on the XZ Plane

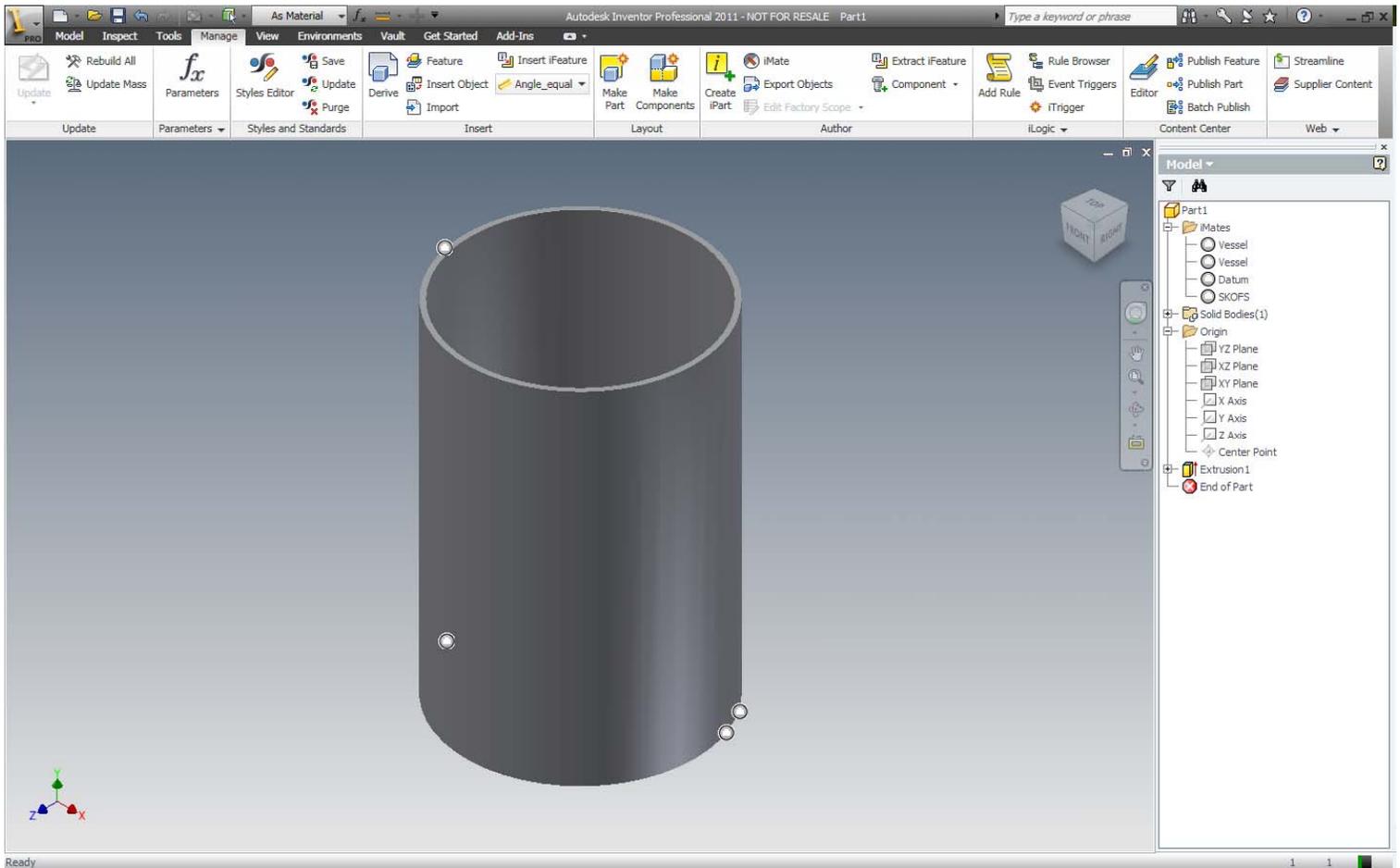


1. Rename Sketch1 to *skShell*
2. Create the following sketch
3. Finish the sketch, and extrude the profile out from the center, using LEN and the distance
4. Rename the Extruded feature to *Shell*
5. Place two **Opposed Insert** iMates on each end of the extrusion, and rename both of them to *Vessel*
6. Place two Aligned Insert iMates on the bottom end of the shell, and rename one of them to Datum, and the other to SKOFS

Datum, and the other to SKOFS

7. Set the SKOFS iMate distance to SKOFS





Save the file, and save a copy as *Skirt.ipt*. We'll be modifying the shell for use as the skirt.