



Part 5 of the iLogic Vessel Tutorial covers the development of the vessel skirt. The objective will be to create a skirt that is driven by the dimensions in the parent assembly. Once complete, you will understand how to use parameters, and dimensions to control the skirt 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 *Skirt.ipt*.

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

Skirt 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: SKLEN
 - iii. Unit/Type: ft
 - iv. Equation: 2
 - 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*

Skirt Parameter Configuration

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

Parameter Name	Unit/Type	Equation	Nominal Value	Tol.	Model Value	Key	Ex	Comment
Model Parameters								
- User Parameters								
OD	in	24 in	24.000000	●	24.000000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Vessel Outside Diameter
THK	in	0.5 in	0.500000	●	0.500000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Vessel Shell Thickness
SKLEN	ft	2 ft	2.000000	●	2.000000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Skirt Length
SKOFS	in	-6 in	-6.000000	●	-6.000000	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Vessel Skirt Offset

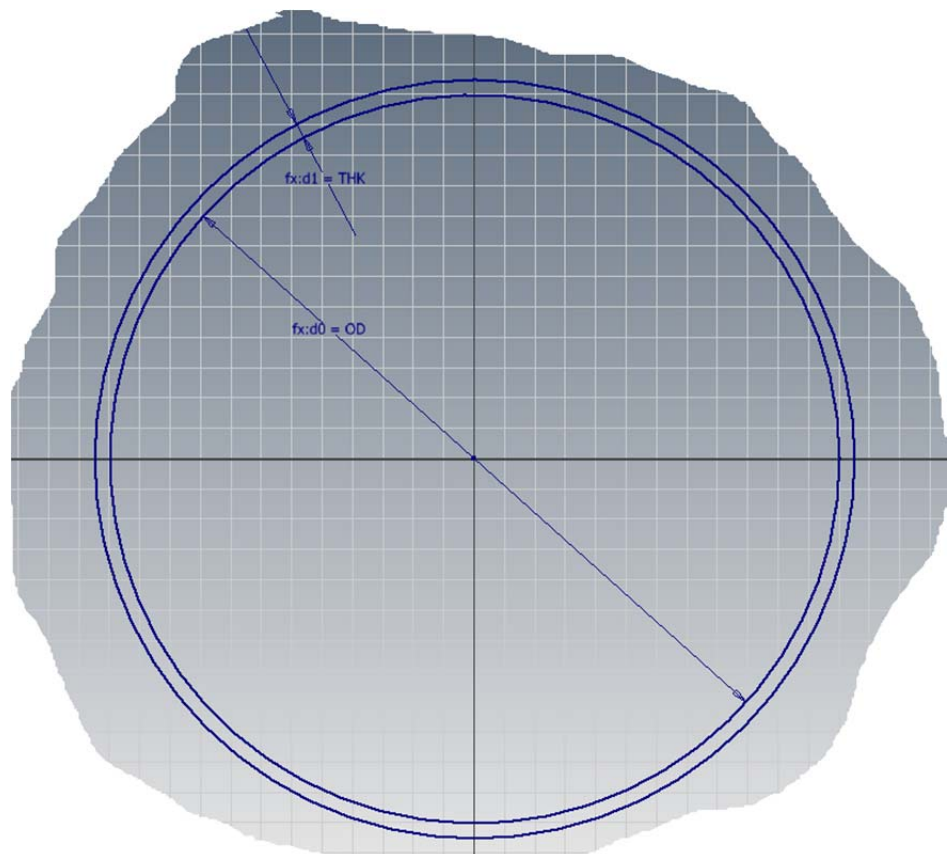
Immediate Update

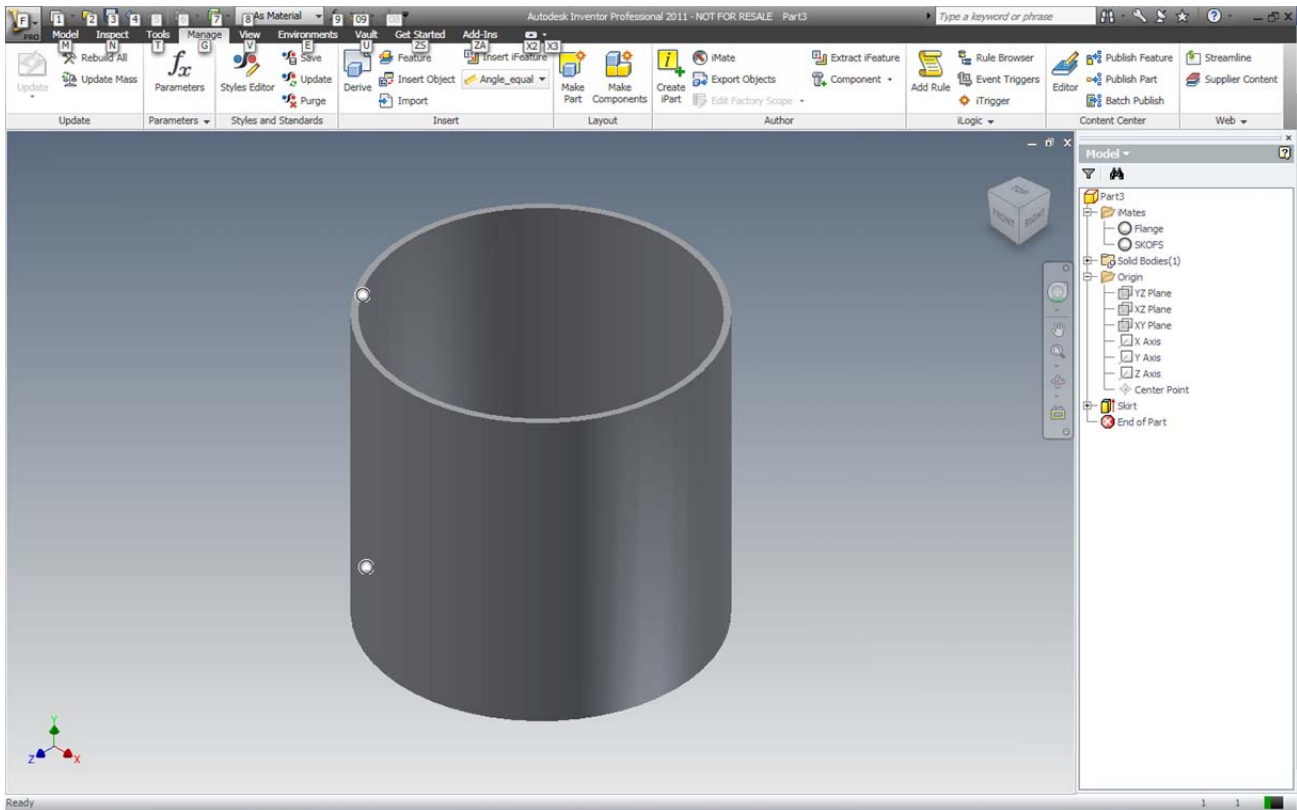
Define Skirt

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



2. Rename *Sketch1* to *skSkirt*
3. Create the following sketch
4. Finish the sketch, and extrude the profile out from the center, using SKLEN and the distance
5. Rename the Extruded feature to *Skirt*
6. Place one **Opposed Insert** iMate on the bottom end of the extrusion, and rename it to *Flange*
7. Place one **Aligned Insert** iMates on the top end of the shell, and rename it SKOFS
8. Set the SKOFS iMate distance to SKOFS





Save the file.

Skirt Flange Parameter Configuration

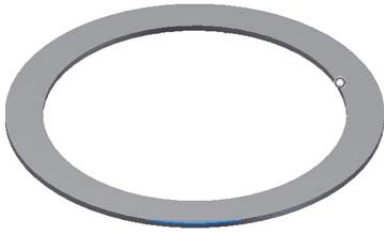
Create a new part using *%ProgramFiles%\Autodesk\Inventor 2011\Templates\Vessels\vessel.ipt* as the template. Save the file as *Skirt.ipt*.

1. Open the Parameters Dialog box
 - a. Delete the Type Parameter, as it is not required for the Shell
 - b. Add the Skirt Flange Width
 - i. Click *Add Numeric*
 - ii. Parameter Name: **WDT**
 - iii. Unit/Type: **in**
 - iv. Equation: **3**
 - v. Key: **Checked**
 - vi. Export: **Unchecked**
 - vii. Comment: **Skirt Flange Width**
 - c. Add the Bolt Hole Diameter
 - i. Click *Add Numeric*
 - ii. Parameter Name: **BHD**
 - iii. Unit/Type: **in**
 - iv. Equation: **0.75**
 - v. Key: **Unchecked**
 - vi. Export: **Unchecked**
 - vii. Comment: **Bolt Hole Diameter**

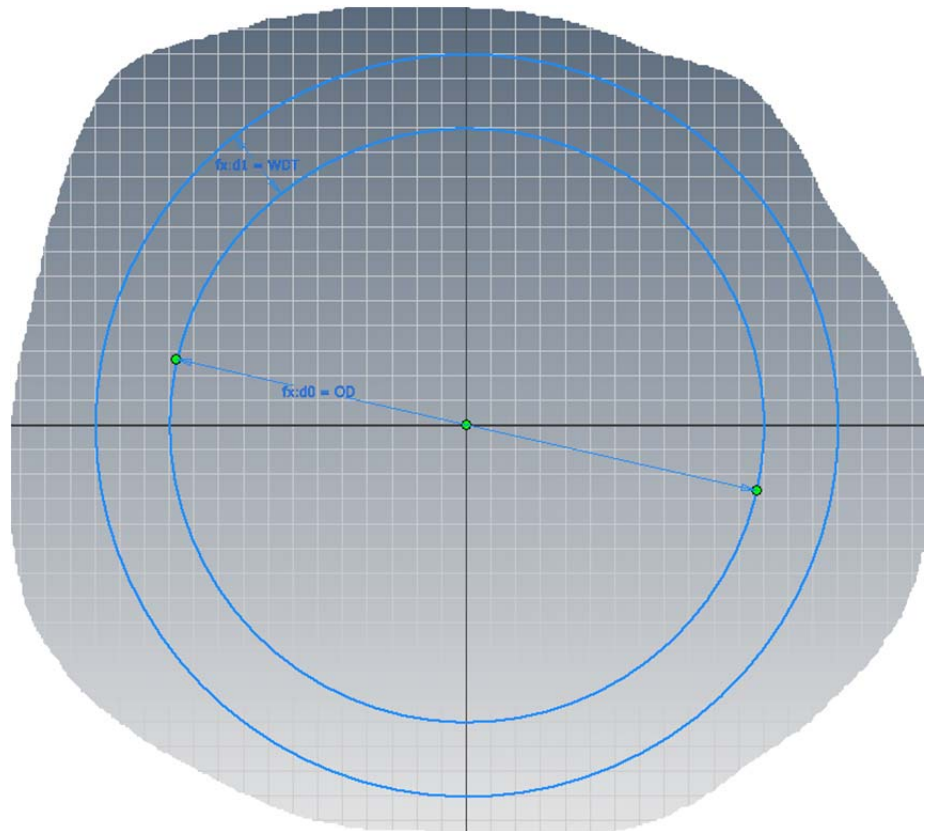
- d. Add the Bolt Circle Diameter
 - i. Click *Add Numeric*
 - ii. Parameter Name: **BCD**
 - iii. Unit/Type: **in**
 - iv. Equation: $(OD + (2 \text{ ul} * WDT)) - (3 \text{ ul} * BHD)$
 - v. Key: **Unchecked**
 - vi. Export: **Unchecked**
 - vii. Comment: **Bolt Circle Diameter**
- e. Add the number of Bolt Holes
 - i. Click *Add Numeric*
 - ii. Parameter Name: **BHN**
 - iii. Unit/Type: **ul**
 - iv. Equation: **12 ul**
 - v. Key: **Unchecked**
 - vi. Export: **Unchecked**
 - vii. Comment: **Bolt Hole Number**
- f. Click *Done*

Define Skirt Flange

Create the Flange



1. Create a new sketch, or redefine *sketch1*, on the XZ Plane.
2. Rename *Sketch1* to *skFlange*
3. Create the following sketch
4. Finish the sketch, and extrude the profile using **THK** as the distance
5. Rename the Extruded feature to *Flange*
6. Place one **Opposed Insert** iMate on the Top end of the extrusion, and rename it to *Flange*

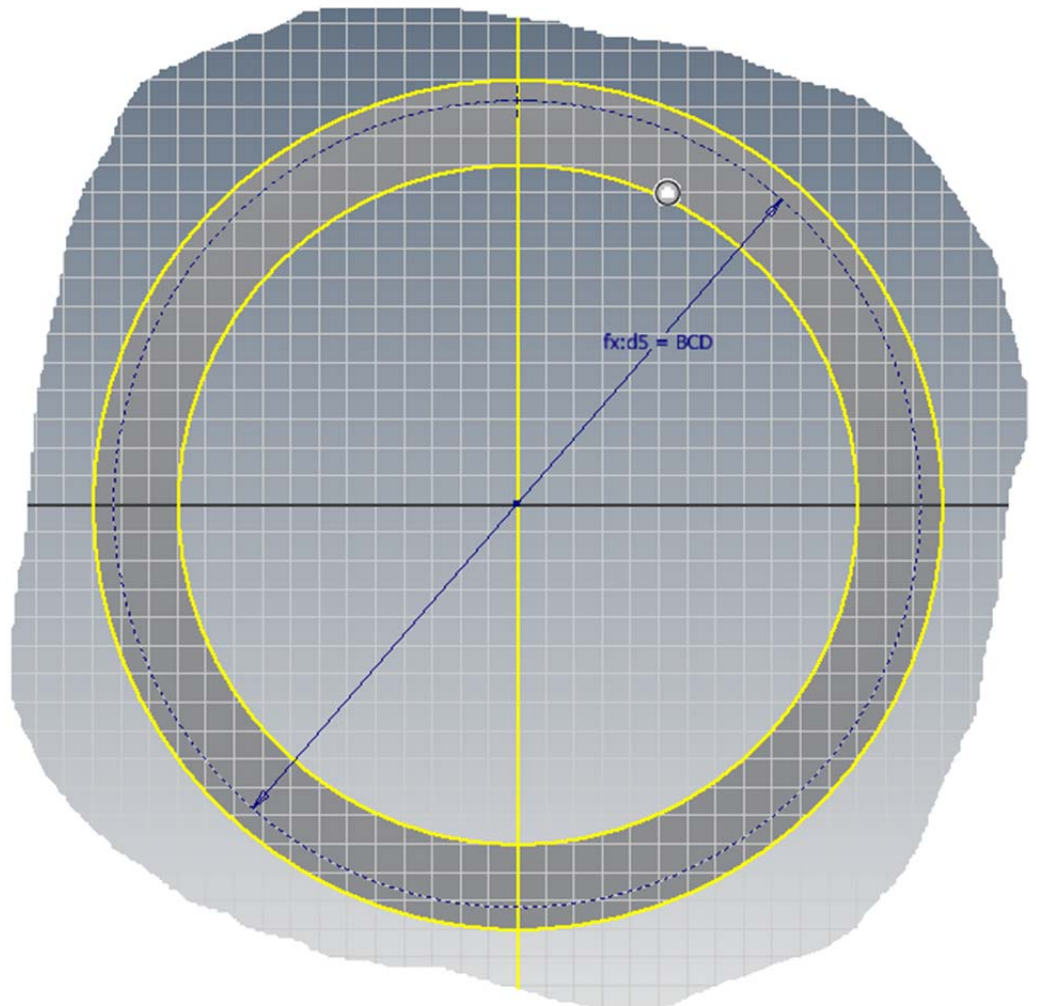


Create Bolt Holes



1. Create a new sketch on the top face of the Flange Extrusion
2. Rename the sketch to *skBoltHole*
3. Create the following sketch.
4. Create a hole through the flange, and set the diameter to **BHD**

5. Rename it to *BoltHole*
6. Create a circular pattern of the hole around the Y-Axis. Use **BHN** for the number of Holes.
7. Rename the pattern to *BoltHoles*.



Save the file.

