1 Assembly Configuration

This project will show how to drive part parameters from assembly parameters

1.1 Instructions

1. Using the Intro to CAD & CAE.ipj

2. Open MIXING BARREL.iam.

3. On the Ribbon, go to the Manage Tab | iLogic Panel | Add Rule
   - The Rule Name dialog appears
   - Enter MIXING BARREL
   - Click OK
4. Set OD and Length in the PERFORATED METAL SHEET:1
   - Double-click on the Length parameter from the Model Parameters under PERFORATED METAL SHEET:1 to add it to the program space.
   - Double-click on the PerforatedMetalLength parameter from the User Parameters under MIXING BARREL.iam to add it to the program space.
   - Repeat for OD.
   - Add Comment

5. Click OK in the Edit Rule dialog box.
6. Change **PerforatedMetalOD** and **PerforatedMetalLength** in the **Parameters** dialog Box
   - Change the **PerforatedMetalOD** to 600
   - Change the **PerforatedMetalLength** to 1500

**NOTE:** The flanges and rods did not update because that are currently not being driven by an iLogic rule.
7. Add a numeric parameter named FlangeRingWidth with a value of 80 mm in the Parameters dialog box.

8. Right-click on MIXING BARREL and select Edit Rule.

9. Set OD and ID in the OUTSIDE FLANGE RING:1
   - OD = PerforatedMetalOD + FlangeRingWidth
   - ID = PerforatedMetalOD
   - Add Comment

```plaintext
'OUTSIDE_FLANGE_RING:1 Parameters
Parameter("OUTSIDE_FLANGE_RING:1", "OD") = PerforatedMetalOD + FlangeRingWidth
Parameter("OUTSIDE_FLANGE_RING:1", "ID") = PerforatedMetalOD
```
10. Set OD and ID in the **INSIDE FLANGE RING:1**
   - After the Equal sign, double-click on the OD parameter from the **Model Parameters** under **OUTSIDE FLANGE RING:1** to add it to the program space.
   - ID = PerforatedMetalOD
   - Add Comment

**NOTE:** This line **Must** be **Below** the line setting OD in **OUTSIDE FLANGE RING:1** to ensure that parameter is set prior to passing it into the **INSIDE FLANGE RING:1**.

```plaintext
'INSIDE FLANGE RING:1 Parameters
Parameter("INSIDE FLANGE RING:1", "OD") = Parameter("OUTSIDE FLANGE RING:1", "OD")
Parameter("INSIDE FLANGE RING:1", "ID") = PerforatedMetalOD
```

11. Set OD in the **BLIND FLANGE:1**

```plaintext
'BLIND FLANGE:1 Parameters
Parameter("BLIND FLANGE:1", "OD") = Parameter("OUTSIDE FLANGE RING:1", "OD")
```

12. Set **Length** in the **OUTSIDE ROD:1**
   - Add the Length parameter from the **Model Parameters** under **OUTSIDE ROD:1** to the program space and set it equal to **PerforatedMetalLength**

```plaintext
'OUTSIDE ROD:1 Parameters
Parameter("OUTSIDE ROD:1", "Length") = PerforatedMetalLength
```
13. Click OK in the Edit Rule dialog box.
14. Add a Rectangular pattern for placing multiple occurrences of the INSIDE FLANGE RING
   - Select INSIDE FLANGE RING:1 as the Component
   - Select the Y Axis from the PERFORATED METAL SHEET:1 as the Column
   - Type InsideFlangeQty = 2 ul into the Quantity parameter
   - With the 2.00 mm highlighted in the Spacing parameter, type InsideFlangeSpacing = and click the List Parameters option from the fly out next to the text box
   - Select NominalInsideFlangeSpacing

   - Click OK.
15. Right-click on **MIXING BARREL** and select **Edit Rule**.

![Image of iLogic interface showing Mix Rule]

16. Calculate **TmpQty**
   - At the bottom of the rule type `Dim TmpQty =`
   - Use the `Floor` snippet under the `Math`
   - Inside the parentheses add `PerforatedMetalLength / NominalInsideFlangeSpacing`
   - Add Comment

17. Use the **TmpQty** from the previous step to calculate **InsideFlangeQty** and **InsideFlangeSpacing**

```vbnet
'Calculate the Quantity and spacing for the Inside Flange
Dim TmpQty = Floor(PerforatedMetalLength / NominalInsideFlangeSpacing)
InsideFlangeQty = TmpQty - 1
InsideFlangeSpacing = PerforatedMetalLength / TmpQty
```
18. Add the `UpdateWhenDone` snippet

19. Click OK in the Edit Rule dialog box.
20. On the Ribbon, go to the Manage Tab | iLogic Panel | Add Form
   - The Add Form dialog appears
   - Enter Mixing Barrel Parameters in the Name text box

![Add Form dialog](image1)

• Click OK
• The Form Editor dialog box appears

![Form Editor dialog](image2)
• Add a tab group to the form by dragging the Tab Group item from the Toolbox into the Mixing Barrel Parameters form.

Note: The form preview window to the right of the Form Editor dialog box shows what the form will look like as each item is added.

• Click on the Tab Group label to highlight it and type User Interface to rename it.
• Add a group to the form by dragging the **Group** item from the **Toolbox** onto the **User Interface** label to add it to the tab group
• Click on the **Group** label and rename it to **Size Parameters**

![Image of software interface](image.png)

• Add the parameters **PerforatedMetalLength** and **PerforatedMetalOD** to the group by dragging the items from the **Parameters** tab onto the **Size Parameters** label

![Image of software interface](image.png)
• Add the parameter **NominalInsideFlangeSpacing** to the tab group by dragging it from the **Parameters** tab onto the **User Interface** label.

• Add another tab group to the form by dragging the **Tab Group** item onto the **Mixing Barrel Parameters** label.

• Rename the tab group to **Standard Parameters**.
• Add the FlangeRingWidth parameter to the Standard Parameters tab group

![Image of FlangeRingWidth parameter]

• Click OK to close the dialog box and add the form to the design
• Click on the Mixing Barrel Parameters button in the Forms tab in the iLogic browser to open the form

![Image of Mixing Barrel Parameters]

• Drive the design by entering various values for each parameter in the form and note how the model changes

22. The File result has been provided… it is named MIXING BARREL with rule.iam.
1.2 Challenge Exercise

1. Add an If-Then-ElseIf statement to the rule to do the following
   - When PerforatedMetalOD <= 450
     - HoleQty = 4
   - When PerforatedMetalOD > 450 and <= 600
     - HoleQty = 6
   - Every other PerforatedMetalOD
     - HoleQty = 8

2. PerforatedMetalOD = 300
3. PerforatedMetalOD = 500
4. \texttt{PerforatedMetalOD = 700}