

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



```
'PERFORATED METAL SHEET:1 Parameters
Parameter("PERFORATED METAL SHEET:1", "Length") = PerforatedMetalLength
Parameter("PERFORATED METAL SHEET:1", "OD") = PerforatedMetalOD
```

5. Click OK in the Edit Rule dialog box.



6. Change PerforatedMetaIOD and PerforatedMetalLength in the Parameters dialog Box

- Change the **PerforatedMetaIOD** to **600**
- Change the PerforatedMetalLength to 1500

Parame	ter Name	1	Unit/	Equation
- Moo	del Parameters			
Use	r Parameters			
 Magna 	NominalInsideFlangeSpa	ding I	mm	240 mm
	PerforatedMetalLength	1	mm	1500 mm
	PerforatedMetalOD	1	mm	600 mm
	Add Numeric	V ×		01
V	Add Numeric •	Update		



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

Param	eter Name	Unit	Equation
Mo	del Parameters		
- Us	er Parameters		
	NominalInsideFlangeSpacing	mm	240 mm
	PerforatedMetalLength	mm	1500 mm
1. C.	PerforatedMetalOD	mm	600 mm
	FlangeRingWidth	mm	80 mm
2 2 2	FlangeRingWidth Add Numeric 🗸 Update Link 🗸 Immedia	mm te Upo	80 mm date

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 •

```
'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**.

```
'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

```
'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



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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
 - Uppe InsideFlangeQty = 2 ul into the Quantity parameter
 - (2) 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
 - 3 Select NominalInsideFlangeSpacing



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

iLogic					
Rules	Forms	Global Fo	orms	External Rules	
Run Rule					
				Edit Rule	
				Regenerate R	ule

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

```
'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

- D	ocument		<pre>Parameter("OUTSIDE ROD:1", "Length") = Per</pre>
	Path		
	FileName		'Calcultate the Quantity and spacing for t
	PathAndFileName		Dim TmpOty = Floor(PerforatedMetalLength /
	ChangeExtension		InsideFlanceOty = $TmpOty = 1$
	WorkspacePath		InsideFlangeSpacing - PerforatedMatalLangt
	Launch Document		insideriangespacing = relioratedwetarhengt
	ThisDoc.Save		
			1LogicVb.UpdatewnenDone = True
	RuleParametersOu	tput	
	DocumentUpdate	Update th	e document after running this rule. Same as Inventor Update
	DocumentUpdate(n	La de trata de la companya de
	Display Only Upda	LOGICVD.U	JpdatewnenDone = Irue
	CheckParameters		

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	
Name:	
Mixing Barrel Parameters	
Type of Form	
In this document	
For all documents (global)	
OK	1

- Click OK
- The Form Editor dialog box appears

Form Editor			Mixing Barrel Parameters
	Label	Inventor Name	ī
	Mixing Barrel Parameters		
Parameters Rules iProperties			
NewiselTesideTeserCestes			Done
- Nominal Insidemangespacing			Done
- Perforated MetalLength			
- PerforatedMetalOD			
FlangeRingWidth			
			_
	Descention Mining Revel Descentary Form		
	Properties Mixing Barrel Parameters Form		
	□ (Name)		1
	Label	Mixing Barrel Parameters	
	Appearance		
	Show Item Borders	False	
	Text Location for Contents	Left	
	Font for Contents	Tahoma, 8pt	
Toolbox	Visual Style	Default	
[^{XX}]Group	🗉 Behavior		
Tab Group	Allow Control Resizing	True	
Pow	Modal	False	
Picture	Predefined Buttons	Done	
Picture Folder	Show on Place Component	False	
Lister			
	Allow Control Resizing		
∽l~ Spitter	Enable the Resize Controls menu on theform.	This allows you to resize controls and groups.	
0			
		Preview OK Cancel	

Add a tab group to the form by dragging the Tab Group item from the Toolbox into the • Mixing Barrel Parameters form

🗏 Form Editor				Mixing Barrel Parameters
Parametes Rules iProperties User NominalInsideRangeSpading PerforatedMetallength PerforatedMetal00	Label	Inventor Name		Tab Group 1
FlangeRingWidth	Properties Tab Group 1 Tab Group (Name) Label Appearance Image Text Location for Contents Toolbp Font	Tab Group 1		
Tab Group Tab Group Row Picture Picture Picture Picture Picture Picture Picture Picture Picture	Font for Contents Behavior Enabling Parameter Name	(none)		
•••splitter	Image An image or picture	Previe	W OK Cancel	

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.

🐨 🕠	Label	Inventor Name	User Interface
¥ ×	Mixing Barrel Parameters		
Parameters Rules iProperties	User Interface		
Nominal Incide Elance Foadag			
Parfa sata dM stall as ath			
Perforated Metallength			Done
PerforatedMetalOD			
FlangekingWidth			
	Properties User Interface Tab Group		
	[]		
	🗆 (Name)		
	Label	User Interface	
	Appearance		
	Image		
	Text Location for Contents	Left	
	Tooltip		
Toolbox	Font	Tahoma, 8pt	
[^{XX}]Group	Font for Contents	Tahoma, 8pt	
Tab Group	E Behavior		
Row	Enabling Parameter Name	(none)	
Picture			
Picture Folder			
Empty Space			
A Label			
• Splitter	Image		
	An image or picture		
-			

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

🔄 Form Editor				Mixing Barrel Parameters
Parametes Rules IProperties User NominalInsideFlangeSpadng PerforatedMetalLength PerforatedMetal00	Label	Inventor Name		User Interface Size Parameters Done
Toolbox	Properties Size Parameters Group Isbel Label Label Image Show Borders Text Location for Contents Tooltip Font Font for Contents Behavior Enabling Parameter Name Enabling Parameter Name	Size Parameters True Left Tahoma, 8pt Tahoma, 8pt (none)		
Picture Folder Empty Space A Label 1 ^o Splitter	Image An image or picture	Previou	OK Cance	

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

Parameter Name Inventor Name User Mixing Barrel Parameter Name User Mixing Barrel Parameter Name Perforated Metal.OD Perforated Metal.oph Perforated Metal.OD Perforated Metal.OD Properties Perforated Metal.OD Properties Perforated Metal.OD Perforated Metal.OD Perforated Metal.OD Properties Perforated Metal.OD Parameter Name (none) Edit Control Type Text Box Misc ReadOnly False Parameter Name Palse Parameter Name Palse Parameter Name Text Box Parameter Name Text Box Parameter Name Text Box Parameter Name Text Box Parameter Na	🖉 Form Editor			Mixing Barrel Parameters
Properties PerforatedMetalOD Parameter Image: Properties PerforatedMetalOD Parameter Image: Parameter Name PerforatedMetalOD Label PerforatedMetalOD Toolbox Tahoma, &pt Toolbox Tahoma, &pt Behavior Text Box Manuel Parameter Name (none) Edit Control Type Text Box Manuel Parameter Name Text Box Parameter Name The name of the parameter in the Inventor document.	Parametes Rules iProperties User NominalInsideFlangeSpading PerforatedMetalangth PerforatedMetal00 FlangeRingWdth	Label Label Label Label Sze Parameters Label Lab	Inventor Name PerforatedMetal.ength PerforatedMetal00	User Interface Size Parameters PerforatedMetal.ongth 1500 mm PerforatedMetal00 600 mm Done
Label of the parameter in the Inventor document.	Toobox Coup Coup	Properties PerforatedMetalOD Parameter (Name) Parameter Name Label Appearance Text Location Tooltp Font Behavior Enabling Parameter Name	PerforatedMetalOD PerforatedMetalOD Left Tahoma, 8pt (none)	
	Tab Group Row Roture Picture Folder Trophy Space A Label of Splitter	Edit Control Type Misc ReadOnly Parameter Name The name of the parameter in the Inventor docume	Text Box False	



Add the parameter NominalInsideFlangeSpacing to the tab group by dragging it from ٠ the Parameters tab onto the User Interface label

🖾 Form Editor			Mixing Barrel Parameters
V	Label	Inventor Name	User Interface
Parameters Rules iProperties	User Interface		Size Parameters
	f Perforated Metall each	Perforsted Metall each	PerforatedMetalLength 1500 mm
ParfaratadMatal anath	f PerforatedMetalOD	PerforatedNetaIOD	PerforatedMetalOD 600 mm
PerforatedMetaLeight	f NominalIngideException	Nominal Inside Forestording	
FlangeRingWidth	······································	Nommannsidenangespading	NominalInsideFlangeSpading 240 mm
	Properties Nominal Inside Flange Spacing Para	ameter	Done
	□ (Name)		
	Parameter Name	NominalInsideFlangeSpacing	
		NominalInsideFlangeSpacing	
	Text Location	left	
	Tooltip		
Toolbox	Font	Tahoma, 8pt	
(*** Croup	🖻 Behavior		
Tab Group	Enabling Parameter Name	(none)	
P Row	Edit Control Type	Text Box	
Picture	Misc		
Picture Folder	ReadOnly	False	
Empty Space			
A Label			
	Parameter Name The name of the parameter in the Inventor documen	t	
0		Preview OK Cancel	

- 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 •

Form Editor			Mixing Barrel Parameters
Farametas Rules iProperties User VorinalInsideRangeSpacing PerforatedMeal.eg/h PerforatedMealNoth FlangeRingWidth	Labd Labd Labd Labd Labd Labd Labd Labd	Inventor Name PerforatedMetalLeigth PerforatedMetalCD NominalInsideRangeSpading	User Interface Standard Parameters Size Parameters Perforated Metalungth 1500 mm Perforated Metal00 600 mm NominalInsideFlangeSpadng 240 mm Done
Toolbox Toolbox Toolbox Rovp Tooloop Row Row Row	C (Name) Label Appearance Image Text Location for Contents Tooltip Font Font Fontfor Contents Behavior Enabling Parameter Name	Standard Parameters	
A Lobel	Image An Image or picture	Preview OK Cancel	

• Add the FlangeRingWidth parameter to the Standard Parameters tab group

			Mixing Barrel Parameters
	Inventor Name	<u>^</u>	User Interface Standard Parameters
rface			
arameters			FlangeRingWidth 80 mm
erforatedMetalLength	PerforatedMetalLength		
erforatedMetalOD	PerforatedMetalOD	-	
nalInsideFlangeSpacing	NominalInsideFlangeSpacing	-	
Parameters			
eRingWidth	FlangeRindWidth		
RingWidth Parameter			Done
	FlangeRingWidth		
	FlangeRingWidth		
	Left		
	Tahoma, 8pt		
Name	(none)		
	Text Box		
	False		
eter in the Inventor document			
m	meter in the Inventor document	meter in the Inventor document.	meter in the Inventor document.

- 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

iLogic 2	
Mixing Barrel Parameters	Mixing Barrel Parameters User.Interface Standard Parameters PerforatedMetalLength 1500 mm PerforatedMetalOD 600 mm NominalInsideFlangeSpacing 240 mm Done

- Drive the design by entering various values for each parameter in the form and note how the model changes
- **21.** Close the file. Do NOT save.
- 22. The File result has been provided... it is named *MIXING BARREL with rule.iam.*

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Project 5 – iLogic Part 4



1.2 Challenge Exercise

- 1. Add an If-Then-Elself statement to the rule to do the following
 - When PerforatedMetalOD <=450

 HoleQty = 4
 - When PerforatedMetalOD > 450 and <=600
 - \circ HoleQty = 6
 - Every other PerforatedMetalOD
 - HoleQty = 8

2. PerforatedMetalOD = 300



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3. PerforatedMetalOD = 500



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4. PerforatedMetalOD = 700

