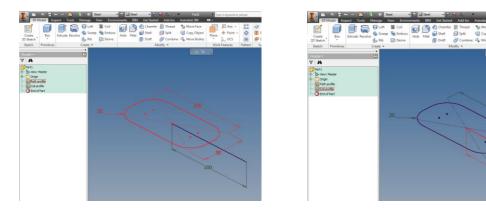
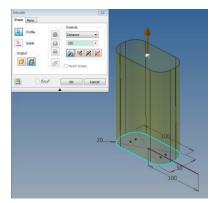
Step 1.

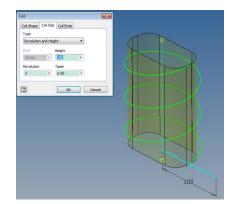
Create ref sketches



Step 2.

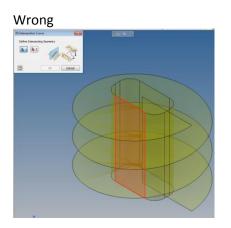
Extrude Path profile as a surface 150mm. Coil profile sketch using Z axis "3" revolution & "150" height

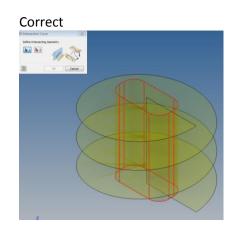




Step 3.

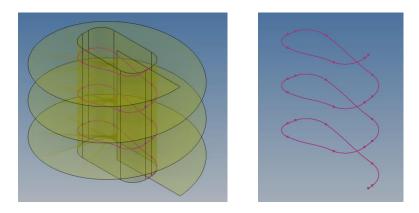
Create 3D sketch, use "intersection Cure" command. Select path profile surface extrusion (tip – hover over surface end edge not face to select complete surface quilt)





## Step 4.

Hide ref surfaces to leave the 3D sketch

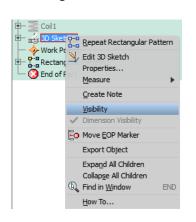


Step 5.

Create work point on the end of the 3d sketch, use "Rectangular pattern" command and select work point 1. Select the 3d sketch as Direction 1. Overwrite the distance as a parameter "drive=10"

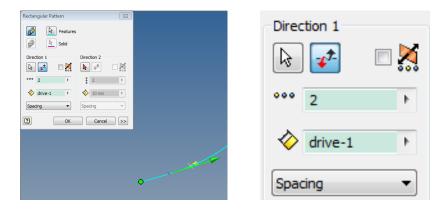
	rection 2 *** ********************************	Direc	tion 1	
Spacing • 5	paong * Concel << rector 2	•••	2	Þ
Compute Onix Optimized @ @ Identical O	Start Identical Direction1 Direction2	$\diamond$	drive=10	۱.
Adjust O	Unection2	 Space	ting	•

The 3d sketch is consumed and hidden from view, right click over sketch and tick visibility to make it visible again.

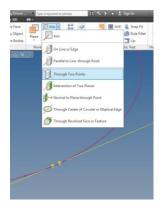


Step 6.

Create another rectangular pattern of work Point 1. Select the 3d sketch as Direction 1. Overwrite the distance as a parameter "drive-1".

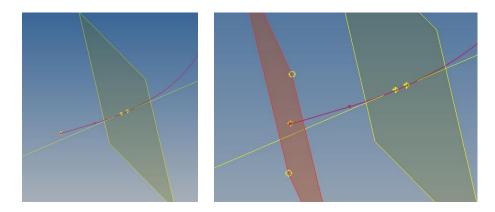


Create an Axis using "though 2 points" the 2 new work points.



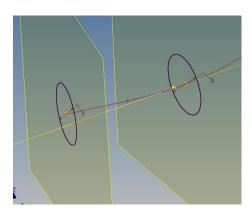
## Step 7

Create a plane on the first patterned work point using the newly created Axis and create a plane at the end of the 3d sketch.



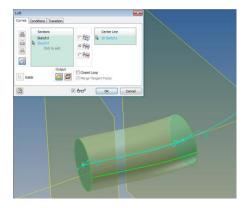
Step 8

Create sketches on the 2 new planes to represent the size of the wire. Use project geometry on the work point to get an origin reference for each sketch. Draw a circle 5mm Dia, repeat this on both Sketches.



Step 9

Loft the profiles using the 3d sketch as Centre line guide rail



Loft			
Curves	Conditions Transition		
	Sections Sketch3 Sketch4 Click to add	<ul> <li>○ ₩3</li> <li>○ ₩4</li> </ul>	Center Line 3D Sketch 1

Now hide the planes and Axis from view



Step 10

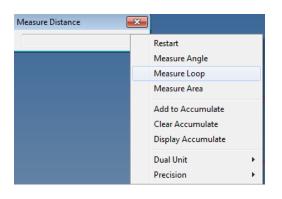
Ok, now we can move to animating the model.

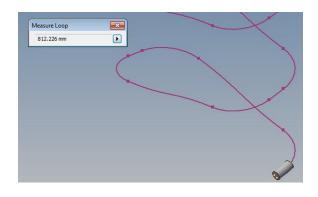
On the Manage toolbar click the Fx Parameter icon. Look for the Model Parameter "drive" and Select the Key activation and Export Parameter buttons. Press Done.



rameter Name	Unit/Type	Equation	Nominal Value	Tol.	Model Value	Key	Exp	Comment
Sheet Metal Paramet.								
Model Parameters								
- d0	mm	100 mm	100.000000	0	100.000000			
d1	mm	50 mm	50.000000	0	50.000000			
- d2	mm	20 mm	20.000000	0	20.000000			
d3	mm	100 mm	100.000000	0	100.000000			
d4	mm	150 mm	150.000000	0	150.000000			
d5	deg	0.0 deg	0.000000	0	0.000000			
d7	mm	150 mm	150.000000	0	150.000000			
d8	ul	3 ul	3.000000	0	3.000000			
d9	deg	0.00 deg	0.000000	0	0.000000			
- d14	ul	2 ul	2.000000	0	2.000000			
drive	mm		10.000000		10.000000			
d17	ul	2 ul	2.000000	0	2.000000			
d19	mm	drive - 1 mm	9.000000	0	9.000000			
d20	mm	5 mm	5.000000	0	5.000000			
d21	mm	5 mm	5.000000	0	5.000000			
<sup>44</sup> d22	ul	0 ul	0.000000	0	0.000000			
- d23	deg	90 deg	90.000000	0	90.00000			

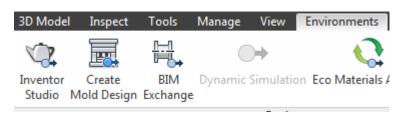
Now we need to find out how long the 3d sketch is for the loft animation. Use the measure tool – measure loop command. Make a note of the length (812.226 – lets say 812 for ease of explanation)





## Step 11

Now go to the Environments toolbar and start Inventor studio



Click Animation TimeLine Icon, Click Animation options icon (bottom right of screen)



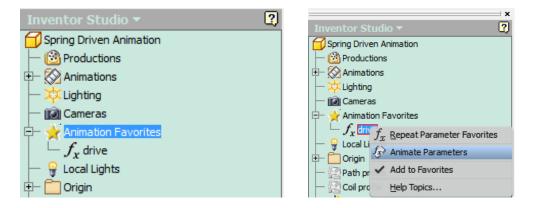
Set the Animation options to run for say 10 seconds. Click Ok

Animation Options	X
Length	
0 ► Minutes 10 ► Seconds	
Default Velocity Profile	
	<mark>%</mark>
20.00%         60.00%         20.00%	
Specify Velocity	
Ouse Default Setting	
Constant Speed	
Playback Interval	
Enable 0.500 > Second	
ОК С	ancel

We need to tell Inventor studio what parameters we want to use in the animation. Click on the Fx Parameter Favorites icon. Select the "drive" parameter Favorites tick box. Select ok

Parameters Favorites			X
View Design Properties	Parameter Na	Value	Favorites
Spring Driven Animation	drive	10.000 mm	2
		ОК	Cancel

We now have the drive parameter in the Animation favorites. Right click on drive and select "Animate Parameters"

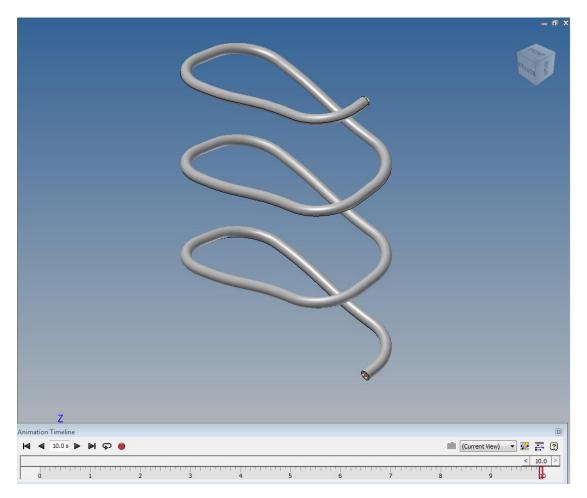


You should now have the default Animate Parameters: drive window showing

Animate Parameters:drive	8	Animate Parameters:drive		×
Animate Acceleration		Animate Acceleration		
Action	Start End	Action	Start End	
Select	10.000 mm → 10.000 mm →	Select	10.000 mm → 812	P.
Time Time From Previous From Previous From Previous From Previous From Previous From Previous From Previous From Previous	Start Duration End → 0.0 s () 0.0 s → 0.0 s	Time From Previous P2 Specify Tistantaneous	Start Duration → 0.0 s A 10.0 s	End + 10
2	OK Cancel 🗗 3.0 s		OK Cancel	3.0 s

Modify the "Action Start and End" to Start 10mm End 812mm, and "Time" End to 10 seconds. Click Ok

You now have the model animated, use the forward and backwards buttons to play the animation, or record icon button to record your animation



This principle can be used on 2D or 3D sketches, so try to use this on other models and see how changing the profile shape on the loft and having different sketch paths can make.