AUTODESK[®] INVENTOR[®] Trial Projects

Assembly Design Create a linear drive assembly

Autodesk A360	Look in: Data	✓ Ø Ø №			
🔅 Libraries	Name	Date modified	Туре	Size	
Content Center Files	L250FM-S-10.ipt	2/13/2016 8:59 AM	Autodesk Inventor	100 KB	
iFeatures	🔂 Lazy Susan Bearing.ipt	2/13/2016 8:59 AM	Autodesk Inventor	130 KB	
images	LED9PIN_2.ipt	2/13/2016 8:59 AM	Autodesk Inventor	598 KB	
	🔂 Lens Foam Gasket.ipt	2/13/2016 8:59 AM	Autodesk Inventor	75 KB	
	Huinear Drive - IGUS v6.iam	2/13/2016 8:59 AM	Autodesk Inventor	223 KB	
	🔂 Linear Drive Mounting Plate.ipt	2/13/2016 8:59 AM	Autodesk Inventor	95 KB	
	Hugh LT-SLW-1040-AL.iam	2/13/2016 8:59 AM	Autodesk Inventor	74 KB	
	Hurslwe-1040-R-69.iam	2/13/2016 8:59 AM	Autodesk Inventor	116 KB	
	🔂 M3 Rubber Washer.ipt	2/13/2016 8:59 AM	Autodesk Inventor	72 KB	
	Magnet .ipt	2/13/2016 8:59 AM	Autodesk Inventor	85 KB	•
1	File name: Linear Drive - IGUS v6.iam		~	•	
	Files of type: Autodesk Inventor Files (*.iam;	*.dwg;*.idw;*.ipt;*.ipn;*.ide)	~		
	Project File: Ember.ipj			Projects	
Quick Launch					

In Inventor, click the 'Projects' icon in the ribbon. Navigate to where you saved the project files and select *Ember-LD-ASM.ipj*. Then open the file *Linear Drive - IGUS v6.iam*.

4.



In the model window, right click to bring up the marking menu. Select 'Place Component' and choose *SWZ-W-104003.ipt*. Left click anywhere in the model window to place and then hit 'ESC'.



Select the sub-assembly *LW-SLWE-1040-R-69.iam* in the model window and right click to bring up the marking menu. Select 'open'.



Right click to display the marking menu and choose 'Joint'. Select the two cylindrical surfaces shown to create the joint, flipping the orientation if necessary.



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C:\Users\Brian\Documents\I	nventor\Ember\Data\SWZ-W-104003.ipt	No
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	Yes to All	No to All

Save and close the subassembly. Make sure *Linear Drive -IGUS v6.iam* is now in the model window.



Change the 'Place Constraint' type to 'Angle' and select the two faces shown. Click 'OK' to apply and close the dialog.



Open the marking menu and select 'Constraint'. Select the axes of the threaded rod and nut to place a mate constraint. Click 'Apply' in the dialog box to leave it open.

Workspace	Look in: 📜 _Vendor	V 0 🕫 🛤 🖿		
S Libraries	Name	Date modified	Туре	Size
Content Center Files	WJUME-01-10	2/13/2016 8:59 AM	File folder	
iFeatures	WJUME-01-10.CATProduct	2/13/2016 8:59 AM	CATPRODUCT File	
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	Files of type: All Models		~	
	Project File: Ember.ipj		✓ P <u>r</u> oje	cts

8.

In the ribbon, open the drop down menu under the 'Place' icon and select 'Place Imported CAD File.' Navigate to the "_Vendor" subfolder, and open *WJUME-01-10.CATProduct*.





Import: WJ	UME-01-10.CATProduct			×
Options Se	elect			
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In the Import dialog, make sure Reference Model is selected and click 'OK.' Left click to place an instance of the model in the assembly and use 'ESC' to end the command.

11.



With the Joint dialog still open, click the circular edge of the bushing (as shown) and guide rail. Change the Joint Type to 'Cylindrical' in the dialog and flip if necessary. Click 'OK'.



Open the marking menu and select 'Joint.' Click the circular features as shown and then select 'Apply' to create a rotational joint.



12.

Right click to open the marking menu and select 'Pattern Component.' Select the linear guide subassembly as the component to be patterned.





Pick the rectangular pattern tab. In the 'Column' section, click the cursor icon and select the edge of the assembly shown (flip if needed). Change the spacing to 40mm and click 'OK'.

5. 🖉	> 😥 PTGSG-konfig:1
	🗸 🔡 🖶 LW-SLWE-1040-R-69:1
	> - Construction Relationships
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	🗸 - 🤂 SWX-104005:1
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	····· 🛄 YZ Plane
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Pick the circular pattern tab. In the 'Circular' section, click the cursor icon. In the model tree, expand the tree as shown in the image above and select the Z-axis.



14.

16.

Reopen the 'Pattern Component' command from the marking menu. Select the two linear guide subassemblies as the components to be patterned.



Change the number of instances to 2 and the angle to 180° and click 'OK' to complete the pattern. Save the assembly.



PART 2: ADDING FASTENERS



Continue with the assembly from Part 1. Right click to open the marking menu, and select 'Place from Content Center'.

Select the circular edge as shown to define the placement of the bolt. The bolt will autosize based on the dimensions of the hole.

Place from Content Center					
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Category View	Socket Head				
Cable & Harness					
Countersunk	Shoulder	AS 1420 - Metric	Bolt GB/T 16939-1997	Broached Socket Head Cap Scre	BS 4168 : Part 1 Hexagon Socket
Hor Head - Flanged Hor Head - Flanged Hor Head Hor Head					
Set Screws	BS 4183 Slotted Cheese Head	CNS 3932	CNS 4355	CNS 4557	CSN 02 1131 A
				5	
	CSN 02 1131 B	CSN 02 1143 A	CSN 02 1143 B	DIN 404	DIN 6912
Features	E ===	E==			
Gill Mold Gill Other Parts Gill Shaft Parts	DIN 7964 A	DIN 7964 B	DIN 7984	DIN 7985 (H)	DIN 7985 (Z)
2	Item Count:1				OK Cano

Expand the Category View for Fasteners > Bolts > Socket Head and choose DIN 6912. Click 'OK'.



Adjust the height of the bolt by clicking and dragging the red arrow. The length should be 12mm (M6 x 12).



PART 2: ADDING FASTENERS



Make sure the AutoDrop option is selected and click the green check mark to place bolts in all four holes simultaneously.



Continue with the assembly from Part 2. Make sure 'Select Part Priority' is selected. In the ribbon, select the 'Inspect' tab and open 'Analyze Interference'.



Select the arrow next to 'Define Set #2' and choose 'Component Pattern 2:1' in the Model Browser to select all four linear guides.



The objective is to determine if there is any interference between the top plate and the linear guides placed and patterned in Part 1. For Set #1, select the plate as shown.

4.



Thee guide rails were placed appropriately, and no interferences are present.





page: 9



Restart the 'Analyze Interference' command. Window select the parts shown in the image above for Set #1.



An interference is detected - between the nut and the threaded shaft. Inspect to make sure only the threaded area is in contact.



6.

Select the arrow next to 'Define Set #2' and window select as shown in the image or simply select the threaded rod.



To setup the motion analysis, start the 'Constraint' command from the right click marking menu.



10.

12.

page: 10

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Select the two surfaces shown in the image above as the mating surfaces.

11

✓ 🔡 🛺 LW-SLWE-1040-R-69:1	
> 💼 Relationships	
> 😴 Representations	
> 🛅 Origin	
> 🔂 SWX-104005:1	
> 🔂 SWZ-W-104003:1	
Mate:1	
Angle:1 (0.00 deg)	
M Insert:1	
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m Insert: 3	
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Rotational 1	
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Find in Window End	

In the Model Tree, expand as shown and right click on the constraint named Travel. Select 'Drive'.

Edit Constraint		×
Assembly Motion Transitional	Constraint Set	
Type	Selections	
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ОК	Cancel	<<
Name		
Travel		
Limits		
Use Offset As Resting Position	i i	
⊡ Maximum		
170 mm	>	
Minimum		
0.000 mm	>	

Click the double arrow (>>) in the bottom right corner. Click the check marks next to 'Maximum' and 'Minimum', entering 170mm in the 'Maximum' box and **Travel** in the 'Name' field.

Drive (Travel)	×
Offset (d25)	Position = (0.000 mm)
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	OK Cancel <<
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total # of steps	 Start/End/Start
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In the dialog, click the double arrow (>>) to expand. In the repetitions box, change to Start/End/Start and enter 2.



13.

page: 11



Click the play button to start the motion analysis and animation.





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