



NEWSUG Meeting Minutes
September 18, 2007, 5:00 p.m.
Fox Valley Technical College, Appleton, Wisconsin

While this report generally covers the meeting events, those events have been arranged into a logical sequence and refined with the purpose of making them helpful rather than precisely representing the presentations as they happened.

40 people attended this meeting.

Click on these links for easy navigation:

[Belts](#)

[Sheetmetal](#)

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Announcements – Bob Braun, Valley Mechanical Solutions LLC

We invite more members to join the Board. We can use extra help, and we would like to diversify to larger and smaller companies in a variety of locations and products.

We would like more members to do presentations. If anyone has a topic that they would like to present, or they are willing to do a presentation, they should contact a board member.

Survey

We did a discussion-survey of the NEWSUG members who were present at the meeting. An earlier invitation to e-mail comments had little response.

In the discussion about meeting format details like meeting time, location, and frequency, there was no direction to change anything.

When we discussed topics of interest, these were mentioned.

Votes Topics

7	Large assemblies
6	CAD libraries, creation and management
5	Sheet Metal
5	Weldments
4	Advanced Mates
4	Configurations/Design Tables
3	Macros, API
3	Most efficient practices for assemblies
2	Molding and castings
2	Piping, plumbing, hose,
1	Best modeling practice
1	Creating parts from within an assembly, Design In-Place
1	Motion Simulation (such as Simulator and Animator)
1	Setting up computer for best performance
1	Sharing extrusions, tube shapes
1	Working with models downloaded from vendors

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SolidWorks Belts – Bob Braun, Valley Mechanical Solutions LLC

Belts, including chains, are an assembly feature. From a modeling view point, belts and chains are almost identical. The belts utility is available only in an assembly.

Start in an assembly model with the belt support features. Model your belt or pulley support structure, including tensioner as parts. Model your pulleys. Put the parts in an assembly support structure, tensioner and pulleys. Leave pulleys free to spin. Leave tensioner free to float over its range.

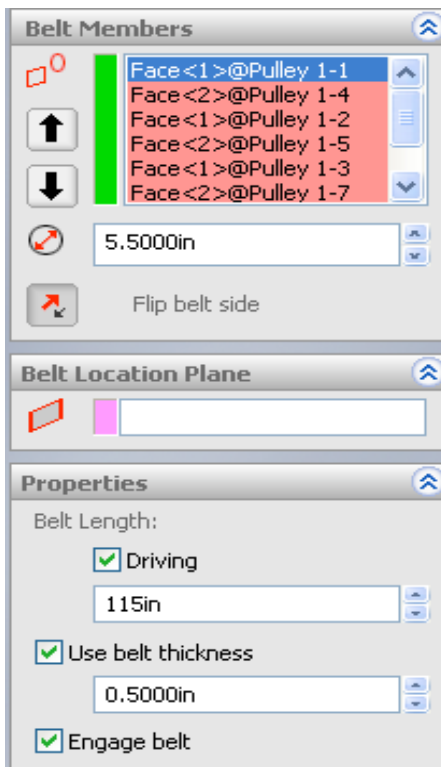
Make a plane at the center of the belt or one of its edges. You will use this plane later to sketch the belt neutral axis and extrude the belt.

Start the Chain/Belt Assembly Feature with either of these methods.

- Select the Belt/Chain Assembly Feature icon. Note that the icon is not in a standard tool bar and must be added.
- Select Insert | Assembly Feature | Belt/Chain



Select the pulleys or sprockets in sequence. As you select them, insure that the listed diameter is the diameter you want. This will be the pulley diameter if the belt is a flat belt with a pitch line midway through the thickness. If the diameter is not correct, edit it in the dialog box. As you select the pulleys, reverse the belt direction if needed by selecting the arrow in the graphics window or the reversing arrows in the dialog box.



Click on the “Belt Location Plane” field and then click on the plane that you created earlier.

If you have a fixed belt length, like a timing belt, check the “Driving” box and enter the belt length in the text box below it. The tensioner will adjust to accommodate the belt length.

Enter the belt thickness. The pitch line will be offset half of the belt thickness from the pulley diameters that are listed with the selected pulleys in the *Belt Members* table.

Check the “Engage belt” box so that you will be able to animate the pulleys rotating later. They will rotate synchronously like they are driven by a timing belt or chain.

When you create the belt the first time, you have an option to “Create Belt Part”. If the option has been selected, you will be prompted for a belt part name and file location. Open the belt file. It will have a sketch of the belt pitch line. Start a new sketch that offsets the belt thickness from both sides of the pitch line. Extrude the belt.

If you have previously selected “Engage Belt”, you can turn one pulley and the others will follow synchronously.

The belt model is linked to the assembly. If this is not acceptable, break the links. Details on managing the links can be found in the notes to the February 2007 meeting.

See Belts under the SolidWorks help topics for more information.

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Sheetmetal – Cami Richter, Fischer/Unitech

Cami gave a high energy demonstration of the sheetmetal design capabilities in SolidWorks.

For those of us with limited experience in sheetmetal design, here is an introductory listing of the basics from SolidWorks Express. The SolidWorks version is a little out of date but the help is clear.

This link outlines two primary ways to work with SolidWorks sheetmetal and the primary sheetmetal tools.

http://www.solidworks.com/swexpress/sept03/200308_techtip_02.cfm

This link is redundant in content from the first one but it is written at a more basic level and has less of the valuable details.

http://www.solidworks.com/swexpress/sept03/200308_techtip_02p.html

This link has primarily redundant content to the above links in that it discusses sheetmetal commands but it also discusses making you more efficient by using the command manager to configure your computer for how you work.

http://www.solidworks.com/swexpress/pages/sep05/TT_Sheetmetal_Productively.html

This link gives a detailed technical discussion about calculating bend allowances.

http://www.solidworks.com/swexpress/pages/nov05/TT_Sheetmetal_Tips.html

This link gives details in these sheetmetal areas:

- Dealing with the annoying details of corners on sheetmetal parts, called *rips*.
- Flattening conical faces.
- Beveled edges on sheetmetal parts.

http://www.solidworks.com/swexpress/pages/nov05/TT_Sheetmetal_Features.html

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Next Meeting:

The next meeting will be November 13, 2007 at FVTC.

The main presentation topic will be Moldings and Castings, and there will be presentations on SolidWorks Calculations.