

Using the Design Journal for Solidworks Parts

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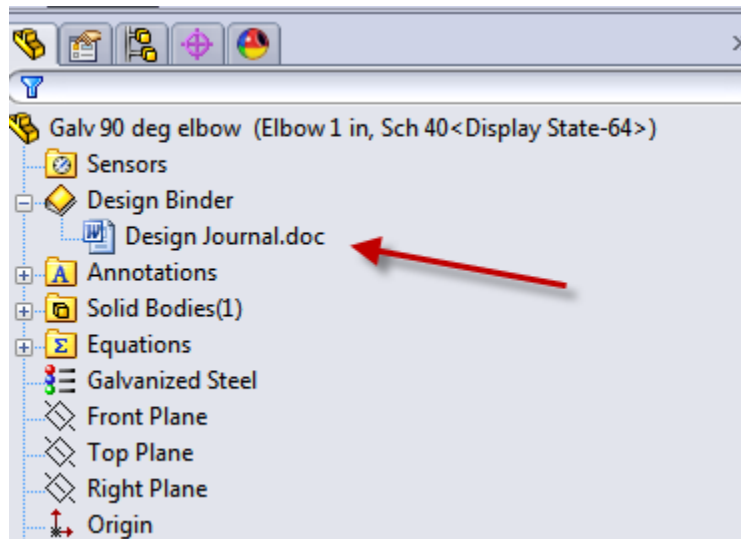
The value of Design Journals during the design process:

Charts, graphs, catalogue pages, manuals and other documents provide critical information during the design process. The easier that the correct information can be used, the more efficient the design process will be. Because every Solidworks part file has a "Design Journal", these Journals provide a tremendous opportunity to help organize and provide important technical information.

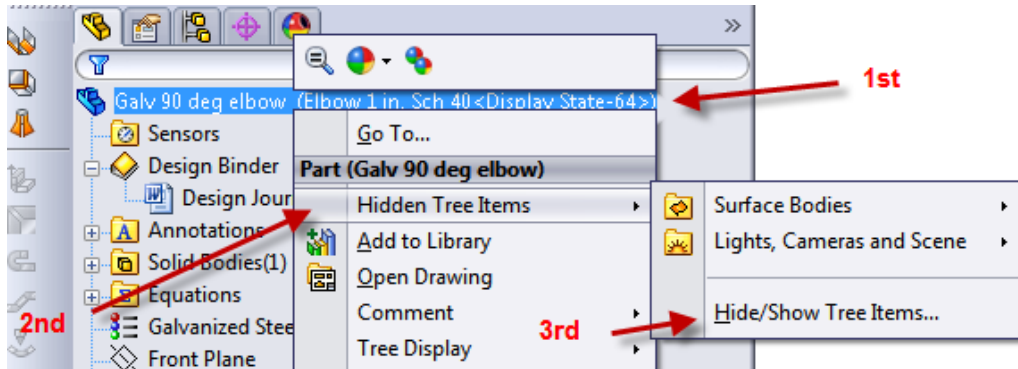
This paper will describe how to effectively use Design Journal's.

How to display Design Binders in the Design Tree:

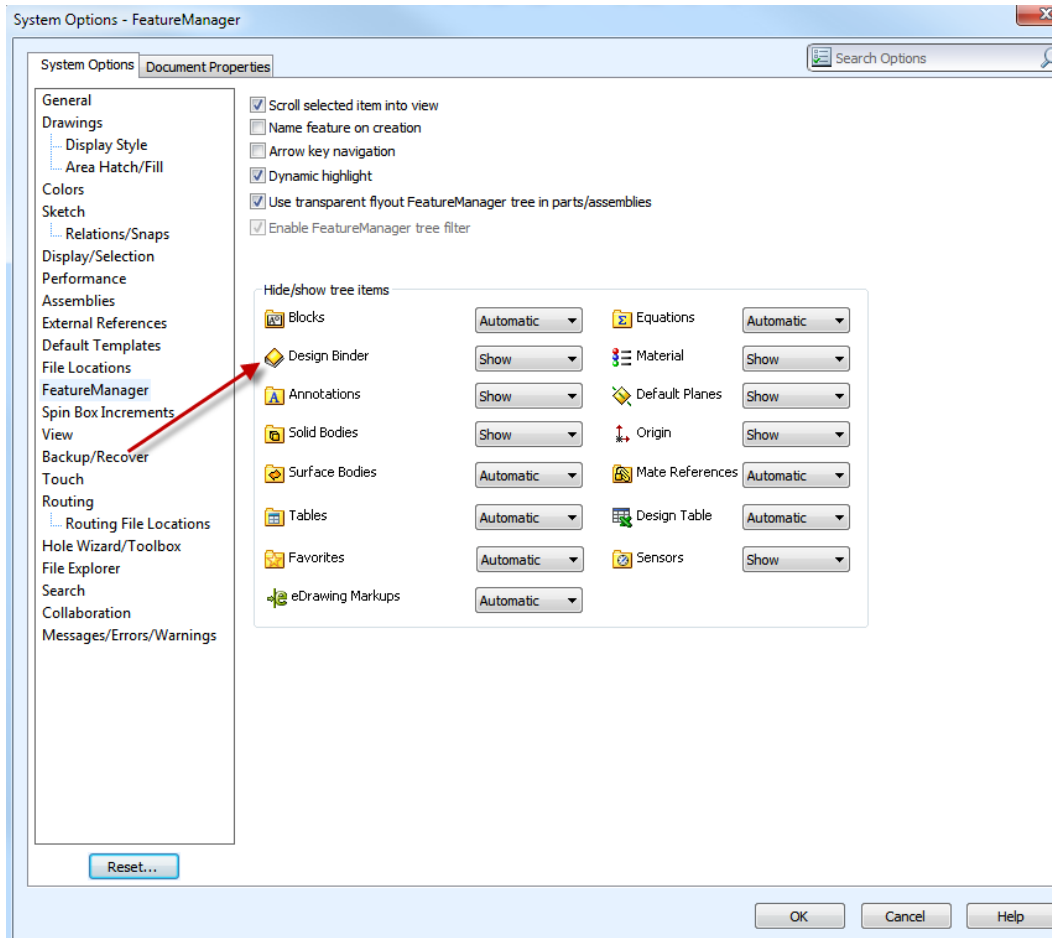
If displayed, the Design Journal can be found under the Design Binder in the parts "tree" of Solidworks:



If the Design Binder is not visible in the design tree, it must be displayed. The Design Journal can be easily displayed with a few selections. First, right click on the main part (step #1 below), then selecting the "Hidden Tree Items" (step #2) and finally selecting the "Hide/Show Tree Items" (step #3):

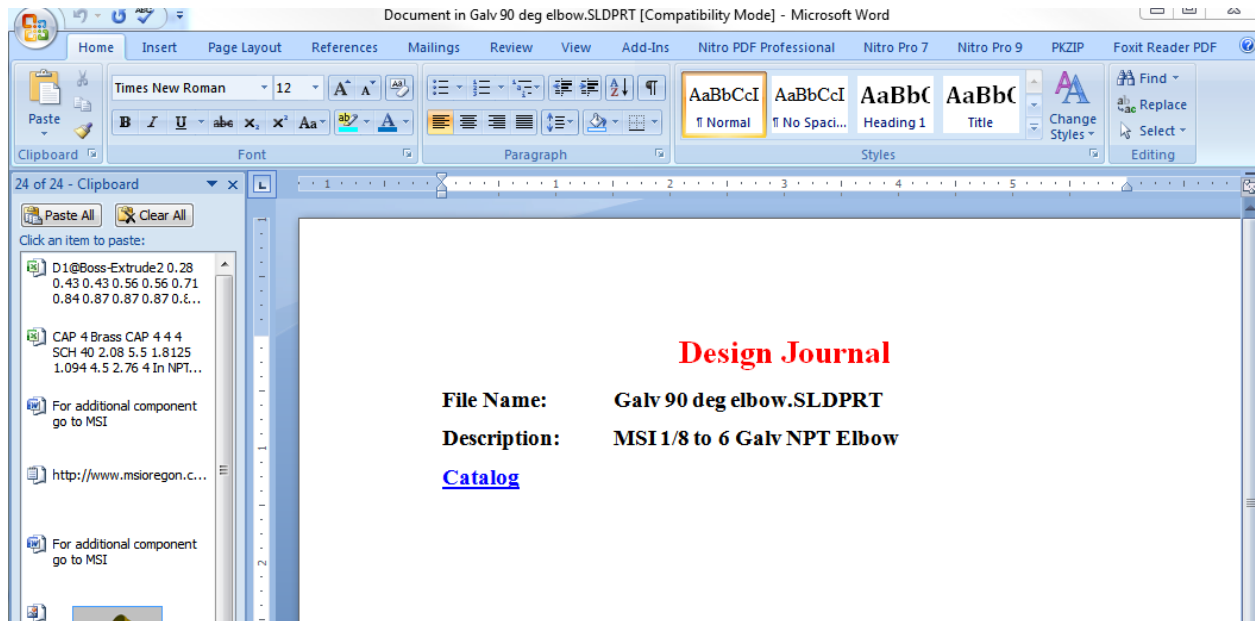


The dialogue box shown below should be displayed. When the "Design Binder" is selected to be "show", the design binders will be displayed on the tree.



Adding Reference material to the Design Journal:

When the Design Binder is displayed, the Design Journal can be opened by double clicking on the "Design Journal.doc" icon. In this example, the Design Journal is displayed below:

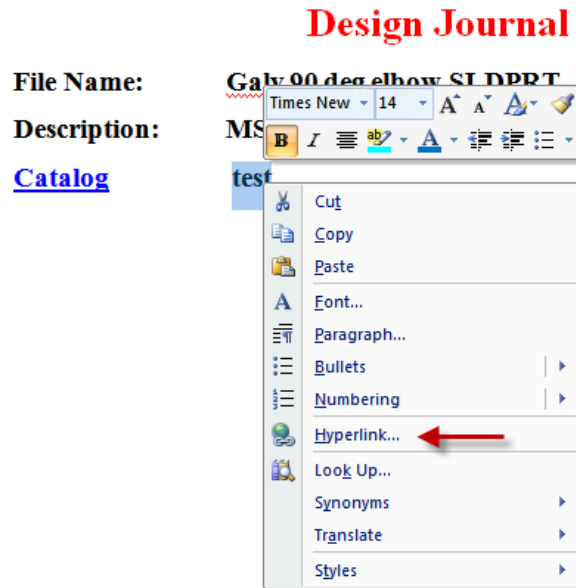


The Design Journal is essentially a MS Word document with all of the similar capabilities. One of the more import capabilities is the ability to insert all types of "elements", such as text, pictures, charts, Excel spread sheets, hyper links etc. **However, an important warning is that inserts into the Design Journal may cause the file size of the part to grow substantially larger.** In past versions, even removing an inserted element after it was inserted did not cause the file size to be reduced.

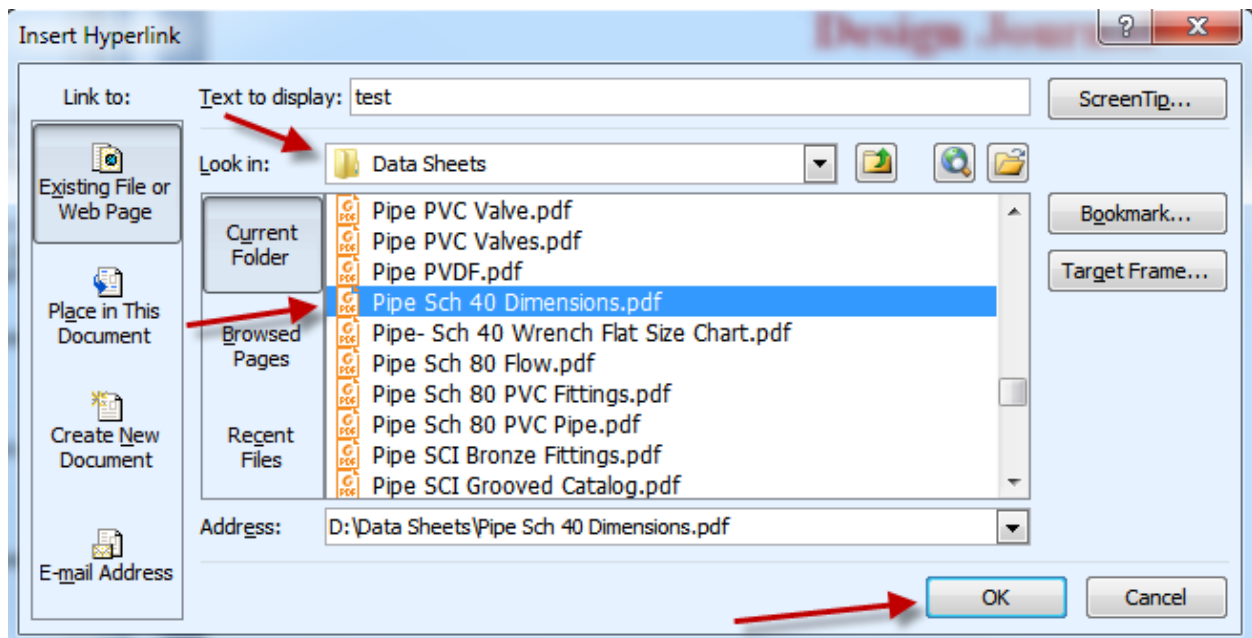
Because of the additional file size, it is recommended to not insert most elements but rather to add hyper links to PDF's and other documents.

Hyperlink "buttons" are not available to be added to Design Journals. However, key words can be added which can be used as descriptive hyperlink "buttons". In the example below, a hyperlink is added to the appropriate descriptive word, "Catalog".

To install a hyperlink, place the desired word, modify the correct style, size, etc. When the word is highlighted, right clicking on the word will display the dialogue box shown below:



Selecting the <Hyperlink...> will reveal another dialogue box:



In the case of linking to a PDF file, the first step is to locate the file.

MSI has adopted a standard where all data sheet PDF's are located in a single standard directory, called "C:\Data Sheets". Any file description or directory is acceptable but **it is very important to choose a directory and file name that will not be changed. If the reference files are moved to a different location or under a different directory name on a system, it will be required to open and edit the hyperlink of every part file.**

An advantage of having a central location for Data Sheets and reference files is that by modifying or updating these files in a single directory will be reflected to every part in the SolidWorks library. This is very helpful as manufacturers update their catalogues and product lines about every year.

Rules for the Data Sheet Directory:

MSI has adopted a standard where all files in this directory are named with a common format.

For standard charts that are not associated with a particular company, the "Topic" is followed by a description of the contents. By using the "Topic" all of the reference information for a particular subject will be grouped together within the directory. As an example, for a pipe flow chart, the name of the file would be "Piping Sch 40 Flo Chart".

For all information that is published by a company, the name of the company is always first, followed by the description of the document contents. This is helpful for grouping, which helps with finding and using all of documents from the same company.

Many times catalogs can be large documents. To make these reference documents more useful, MSI has found it helpful to add short list with Hyperlinks, such as a piece of information that is commonly needed or the page numbers for the particular part.

The value of Web Pages:

Many times, non PDF links and references can be helpful aids during the design process. A good example of this may be one of the many conversion calculators that are on the web. These references can be made quickly available by right clicking and opening hyperlink's within the Design Journal. An example for converting cm to inches is: <http://www.convertunits.com/from/cm/to/inches> This is only an example but a large number of these types of resources can be easily linked through hyperlinks.

MSI Free Reference webpage:

A free service that MSI provides is a quick reference webpage which is a collection of reference charts and link to suppliers:



To View Additional Project Pictures

Engineering Services Provided:

- Custom & Automated Equipment.
- Complex Control Systems.
- Equipment Software and Data Base Development.
- Creative solutions for complex manufacturing challenges.
- Project management Assistance.
- R&D and New Product Development




Process Development

The plan is to continue to improve the MSI reference page. The current page is shown below. Please submit your favorite reference information, charts or links. The best favorites will be added to this web page.

SOLIDWORKS REFERENCES

Piping References:

 [Sch 40 Pipe Flow Table](#)

 [Sch 80 Pipe Flow Table](#)

Pipe Flow Rules of Thumb:

Pump Suction Lines: 2-4 FPS
Low Pressure Drop: 6-10 FPS
Normal Pressure Drop: 10-15 FPS
Higher Pressure Drop: > 15 FPS

Pipe Catalog Links:

[+GF+ PVC and Plastic Piping](#)
[CCTF Steel, SS, Malleable Fittings](#) (Open in new window)
[Smith Cooper Brass, SS Fittings](#)
[Smith Cooper Stainless Steel #150 Fittings](#)
[Sprinkler Piping- Pipe Fitters Handbook \(PDF Download\)](#)
[VNE Tri-Clamp Components](#)

Misc Links:

[Sheet Metal Gauges](#)

Electrical Links:

[Electric Motor Calculator](#)
[Electric Wire Size Chart](#)
[Electric Power Chart](#)

The intent of this webpage is to be a quick "index" for design resources. The address of this page can be used as a hyperlink: http://www.msioregon.com/SW_References.html in individual part Design Journals, or an icon can be added to the Desktop.

Icons on the Desktop have one advantage in that the Design Journal does not need to be opened for access. To create a Desktop Icon, open the webpage and drag the icon over to the Desktop:

http://www.msiregon.com/SW_References.html

Then drag the www symbol to the Desktop. A double click on the new icon will open the reference page.

The screenshot shows a web browser window with the address bar containing www.msiregon.com/SW_References.html. A red arrow points to the 'www' icon in the address bar. The page content includes a blue header for 'Manufacturing Systems Inc.' with the tagline 'HELPING TO KEEP AMERICAN MANUFACTURING STRONG BY PROVIDING CREATIVE-COST EFFECTIVE AUTOMATION & MANUFACTURING SOLUTIONS'. Below this is a navigation menu with items: Company, Equip/ Mech, Controls, Software, Product Des, Process R&D, Line Projects, and Store. The main content area is titled 'SOLIDWORKS REFERENCES' and contains a section 'Estimated Flow Rate of Pipes:'. Underneath, it says 'For Estimation Purposes Only' and presents a table with pipe specifications and flow rates in GPM.

Sch 40 Pipe	OD	ID	Area Sq In	GPM							
				2 FPS	4 FPS	6 FPS	10 FPS	12 FPS	15 FPS	20 FPS	30 FPS
1/8	0.405	0.269	0.057	0.35	0.71	1.06	1.77	2.13	2.66	3.54	5.31
1/4	0.540	0.364	0.104	0.65	1.30	1.95	3.24	3.89	4.87	6.49	9.73
3/8	0.675	0.493	0.191	1.19	2.38	3.57	5.95	7.14	8.92	11.90	17.85
1/2	0.840	0.622	0.304	1.89	3.79	5.68	9.47	11.36	14.21	18.94	28.41

Conclusion:

Design Journals can be valuable for organizing and finding design information, as well as providing for hyperlinks to web pages.

A central "Design Sheet" directory can be very helpful in maintaining PDF's of catalogues and cut sheets.

The free MSI Reference webpage may be helpful as a quick "index".