



Design Tips Newsletter

Solid Fill

Edition 4

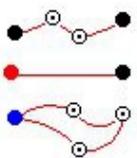
September 2012

Having problems with parts falling out? Learn how to use Solid Fill. Cutting Shop's Solid Fill is a very useful tool for visualization purposes. It works by flood filling closed areas with color. Solid Fill is most often used to help identify parts in a drawing that may drop out during the cutting process. Once identified, such areas may be quickly edited, eliminating the drop out issue. Cutting Shop's solid fills can be printed and saved in it's own CSP format, but will not save as a DXF entity because this fill cannot be cut. Printed drawings that have solid fills are often used to show clients a picture of a part, for final approval, before it is cut.

Basic Feature Review

Cutting Shop's vectorization process creates polylines. A polyline is a group of lines and arcs that are chained together and may be copied, deleted, rotated, and moved, etc. Most, but not all, machining programs do not read polylines so we recommend that when saving your drawing to a DXF format, you select the LINES/ARCS option, the entities are then saved as individual segments. The saved DXF file saves the drawing exactly as it appears on the Cutting Shop screen except entities will not be in the polyline format; arcs, lines, and entity order all remain the same so that your cutting tool is not doing additional and unnecessary movement, or stoppage.

Press F2 (Show Points) to turn points ON and OFF.



Black dots are end points of unclosed polylines. An individual line or arc that is not part of a group of lines or arcs will have a black point at each end.

Like black dots, red dots are end points of unclosed polylines. They appear red only because something is happening to them, either it is the next point in a series of points that are being JOINED, with the Join tool, or it is PICKED with the Pick tool, or it is a new point that was created with the Insert Point at Intersection feature, or other operation. Press F2 twice and the point will no longer be red.

A closed polyline has a single blue dot and and least one bulls-eye point. The blue point is the start/stop point of the polyline.

A bulls-eye point is an internal point between two lines, two arcs, or a line and an arc.

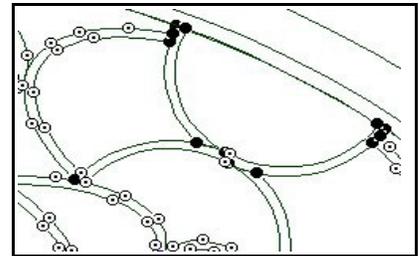


Cleaved points are shown as black points. The Uncleave tool can be used to turn many line/arc segments into long polylines that consist of lines and arcs. Where possible these will also create closed polylines. With the Uncleave cursor tool in a blank portion of the screen double left click to get the Uncleave dialogue box. You will see the amount of gap that the tool can jump in order to join polylines. If the gap is too large you will find lines joining that should not be joined. I find that for most applications a gap set to .0001 works well.

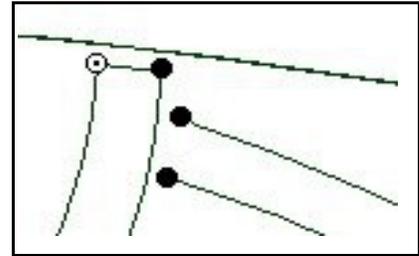
In a simple drawing the blue point may be all the assurance you need that the correct areas will be cut. However, in a busy drawing identifying pieces that will drop-out without using the solid fill can be a challenge. To do the cut without inspecting the drawing with Solid Fill may be a waste of time and material, and resources.

Illustrations

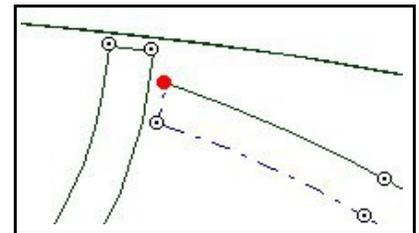
The example on the right shows a vector file with black end points and bulls-eye points. This portion of the drawing does not have any blue end points so there are not any closed polygons. It is not clear which portions are to be cut as parts, so this drawing will have to be edited within Cutting Shop.



One problem is that the polylines end where they intersect with other polylines, they are not closed. To create a closed polyline, the black points at each end of a polyline may be dragged back a short distance, creating a gap between the endpoint and the intersecting line, as shown in the example on the left. This can be done with the aid of the Drag tool. Once this is done a line may be drawn from one end point of one polyline to the closest black point of the next line.



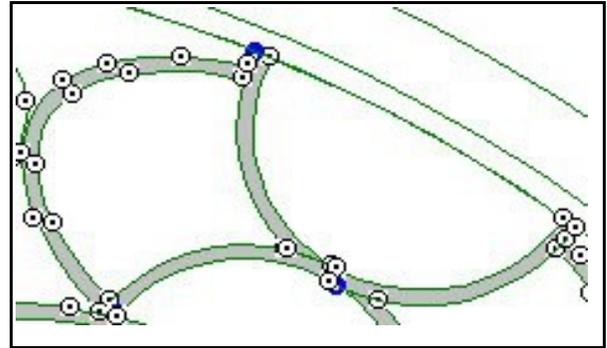
The sample to the right has had the points dragged back from the intersecting polyline and lines have been drawn across the ends. A red point is shown at the end of the dashed line where it runs into the green line. In this case the Join tool is being used to close a polyline and the red point is the next point in the sequence to be joined. When finished you will have a single blue point in the closed polyline, other points in the polyline will be the bulls-eye points.



When one or more polylines are closed you may use the Solid fill tool to individually select each polyline or box select a group of polylines, or the entire drawing. Filled areas will clearly show areas that will cut as individual pieces. Fills can be erased by using the Select tool to select the fill and then pressing your keyboard **Del** key.

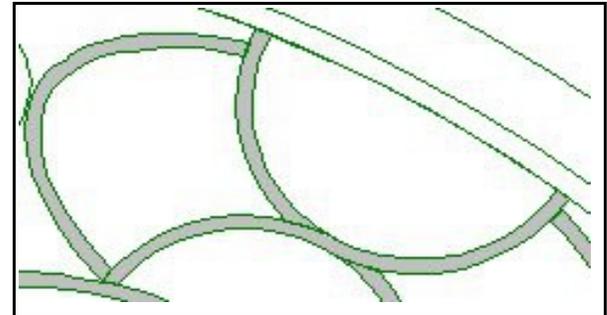
The next two illustrations are the same except that the first one has Show Points ON (F2), and the second one is not showing points.

Taking a few minutes to learn Cutting Shop's vectorization processes and vector editing tools can save you hours of preparation and will insure that you will get the best possible results while spending the least amount of time. I find that the average drawing takes me about 10 minutes from vectorization to edited and saved DXF file.



Enjoy Cutting Shop and feel free to call us if you have any questions.

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Cutting Shop v4.5

For more information about Cutting Shop check out the movies on the home page of our web site or call us with your questions. Also, if you haven't yet upgraded to v4.5 call us for the upgrade price.

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