

DXF Writer for CNC

By Bob Adams

No need to learn or have a CAD Program

To make a part you would sketch your idea on paper first.

Then draw the part, using a CAD program.

With DXF Writer all that is needed is the sketch.

On the sketch are the figured XY Start and End points.

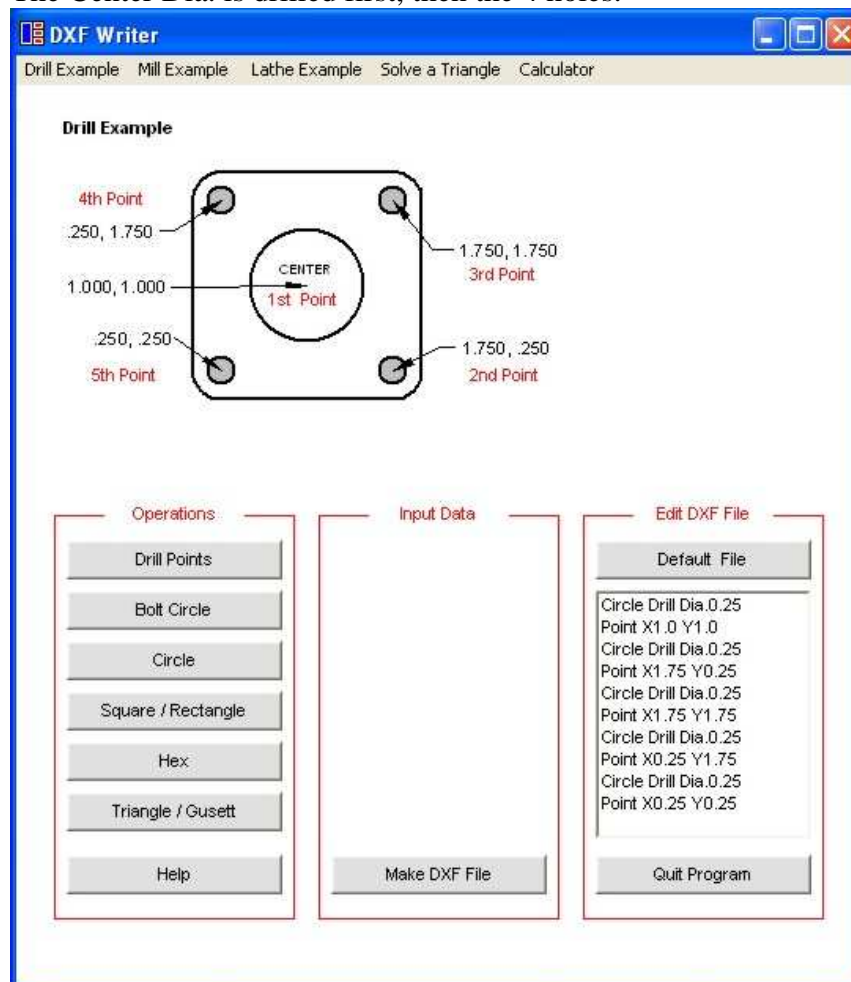
Create a DXF File combining Shapes to make a Completed Part.

For those who have a CAD program you can import the DXF created.

This would also give help to CAD beginners.

Drill Example Shown:

The Center Dia. is drilled first, then the 4 holes.



Drill example:

This could be the mount for Stepper motor.

Click on Drill Points

The XY points will be displayed after each point has been entered.

This is shown in the List Box, also the Drill Diameter for that location.

After you finish the operation and Click on Make DXF File.

If there is an XY mistake, in the List you can correct it with the Default File.

The Default File opens in Notepad, compare the List to the Default File.

Where to change the XY Points is under 10 and 20 in the Default File.

After you correct the mistakes if you have any, Save As your Filename.

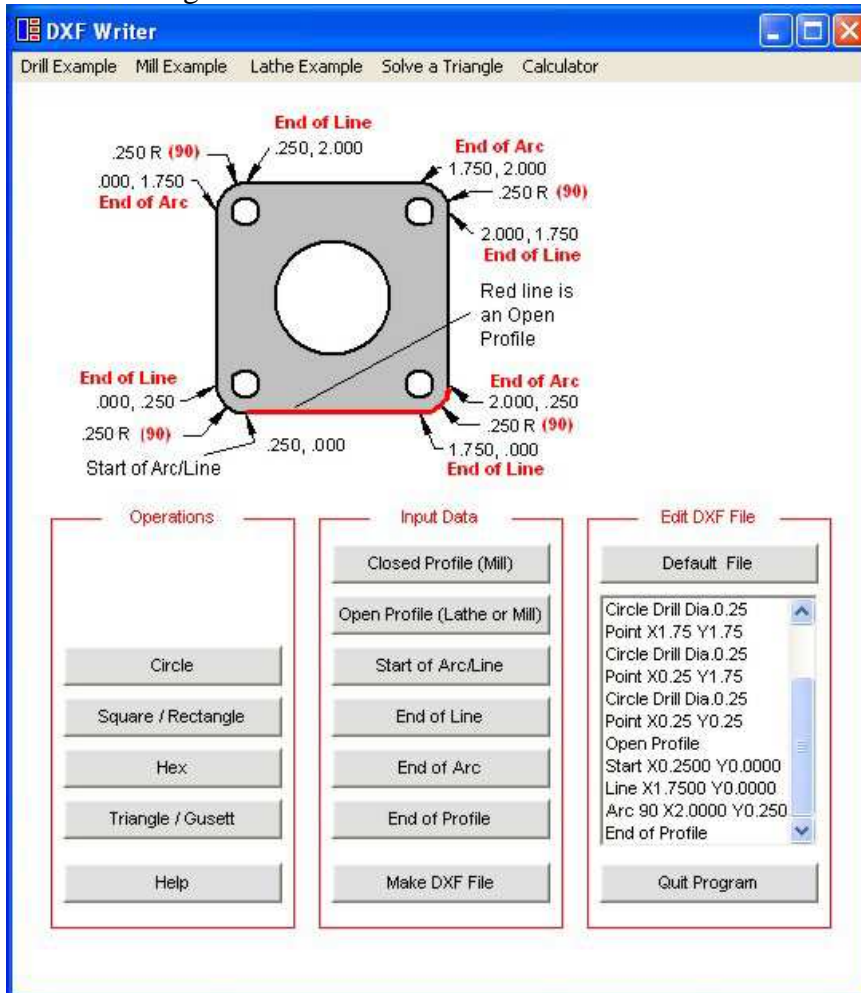
Note:

All XY points are from 0, 0 (Left Hand Corner).

Starting with the Center Diameter.

1. Enter X point type 1.000
2. Enter Y point type 1.000
3. Select the default Y
4. Click OK
5. Enter X point type 1.750
6. Enter Y point type .250
7. Select the default Y
8. Click OK
9. Enter X point type 1.750
10. Enter Y point type 1.750
11. Enter the default Y
12. Click OK
13. Enter X point type .250
14. Enter Y point type 1.750
15. Select the default Y
16. Click OK
17. Enter X point type .250
18. Enter Y point type .250
19. Type N
20. Click Ok
21. Click on Make DXF File
22. The file is done use the CAD2Drill to convert to gcode.

Following the Mill example shown.
 The Holes are done.
 Next is milling the Profile.



Click on Open Profile following the RED Line.
 Click on Start of Arc/Line

Note:

All XY points are from 0, 0 (Left Hand Corner)

1. XY Start point at the bottom 0.250, 0.000
2. XY End point for the Line moving (CW) direction 1.750, 0.000
3. XY End point for the 90 degree Arc 2.000, 0.250
4. Click on End of Profile.
5. Click on Make DXF File.

These are the screens for the Mill example.
Next type 0.25 Click OK



A dialog box titled "Start Point" with a close button (X) in the top right corner. The text inside reads "Enter X Start?" followed by "Example type 0.250". On the right side, there are two buttons: "OK" and "Cancel". At the bottom, there is a text input field containing the value "0.25".

Next type 0.0 Click OK



A dialog box titled "Start Point" with a close button (X) in the top right corner. The text inside reads "Enter Y Start?" followed by "Example type 0.0". On the right side, there are two buttons: "OK" and "Cancel". At the bottom, there is a text input field containing the value "0".

Next type 1.75 Click OK



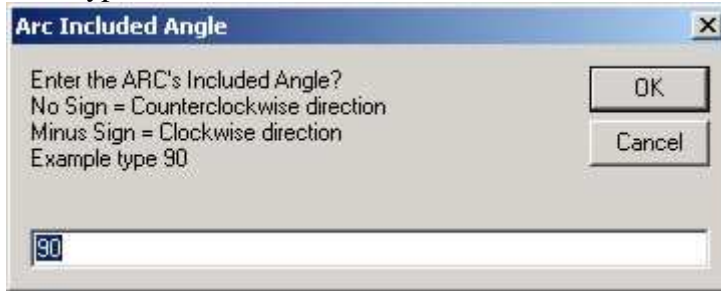
A dialog box titled "Line X End Point" with a close button (X) in the top right corner. The text inside reads "Enter Line X End ?" followed by "Example type 1.75". On the right side, there are two buttons: "OK" and "Cancel". At the bottom, there is a text input field containing the value "1.75".

Next type 0.0 Click OK



A dialog box titled "Line Y End Point" with a close button (X) in the top right corner. The text inside reads "Enter Line Y End ?" followed by "Example type 0.0". On the right side, there are two buttons: "OK" and "Cancel". At the bottom, there is a text input field containing the value "0".

Next type 90 Click Ok



Next type 2.0 Click OK



Next click on End of Profile Click OK

Next click on Make File Click Ok

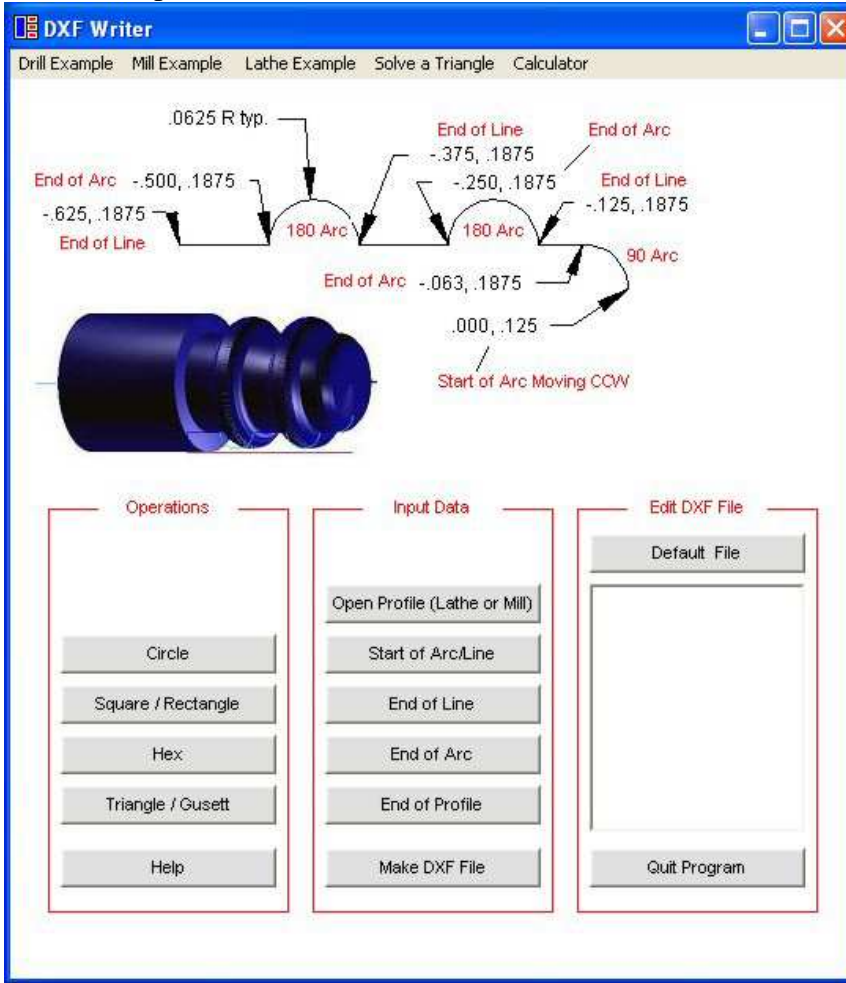


Next to Quit Click Yes or No



Mill example is finished.
Use Cad2Engrave to convert to gcode.

Lathe example shown.



Lathe example:

Note:

All XY points are from 0, 0

To the left X is (-) Negative Y is (+) Positive.

Use Open Polyline for the Lathe

1. XY Start point 0, .125
2. XY End point for the 90 degree Arc -.063, .1875
3. XY End point for the Line -.125, .1875
4. XY End point for the 180 degree Arc -.250, .1875
5. XY End point for the Line -.375, .1875
6. XY End point for the 180 degree Arc -.500, .1875
7. XY End point for the Line -.625, .1875
8. This completes the Open Polyline.

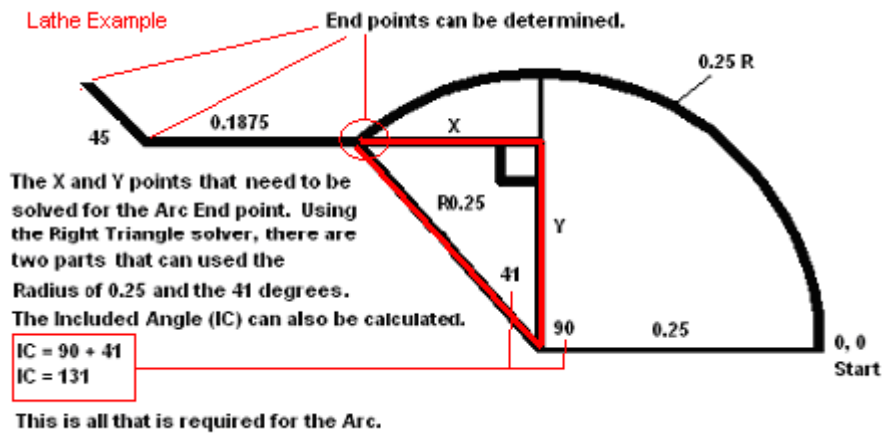
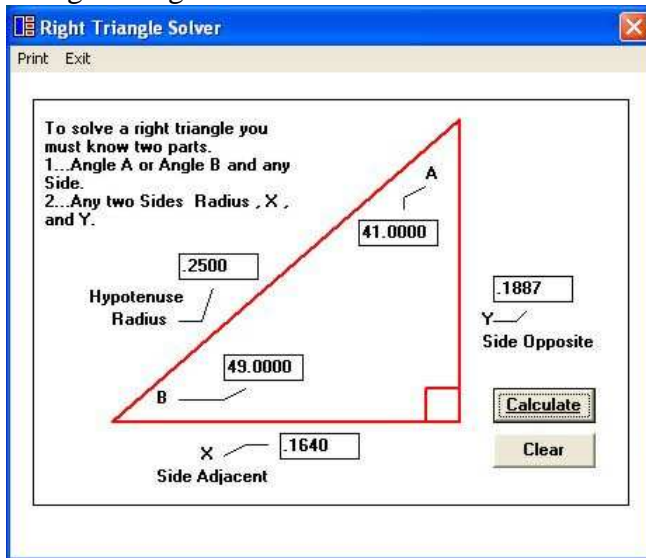
9. Convert to gcode using the CAD2Lathe program.

The Screen from Mach 3 lathe with above Lathe example shown.



Lathe example for making a Ball.

Using the Right Solver to Solve for X and Y.



Note:

All XY points are from 0, 0 Center of Part.

To the left X is (-) Negative Y is (+) Positive.

Use Open Polyline for the Lathe

The X and Y calculated from the Right Triangle Solver.

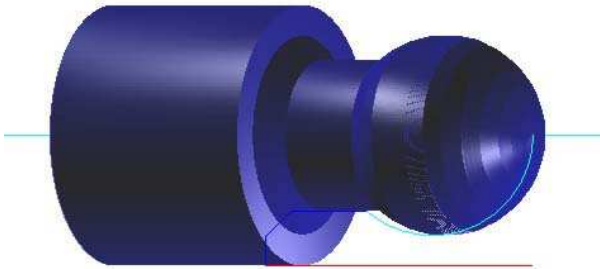
X = .1640 Y = .1887

X End point for the Arc is .25 Radius + X 0.1640 = 0.4140

Y End point for the Arc is Y = 0.1887

1. XY Start point 0, 0
2. XY End point for the 131 degree Arc -0.4140, .1887
3. XY End point for the Line -0.6015, .1887
4. XY End point for the Line -0.6640, 0.25
5. This completes the Open Polyline.
6. Convert to gcode using the CAD2Lathe program.

This is the Screen from Mach 3 lathe program created from Lathe example.

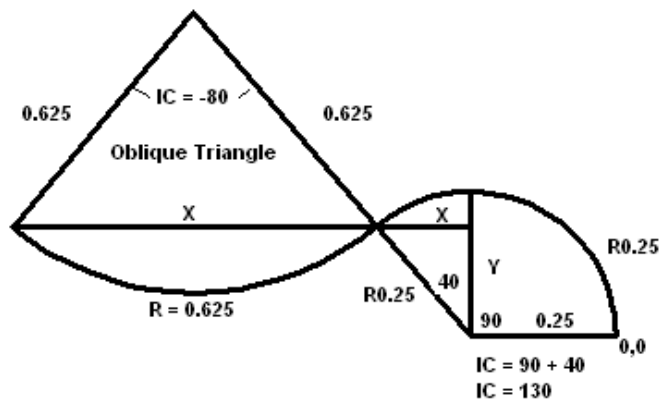
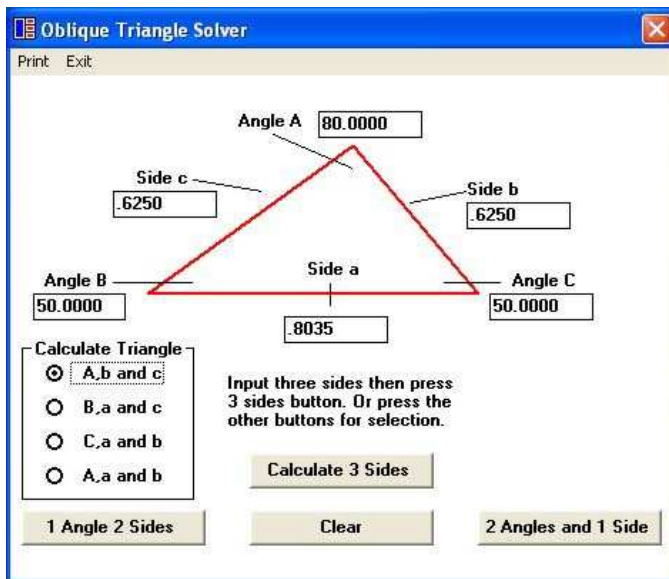


Doing the Math

To solve a right triangle you must know two parts.
1...Angle A or Angle B and any Side.
2...Any two Sides Radius , X , and Y.

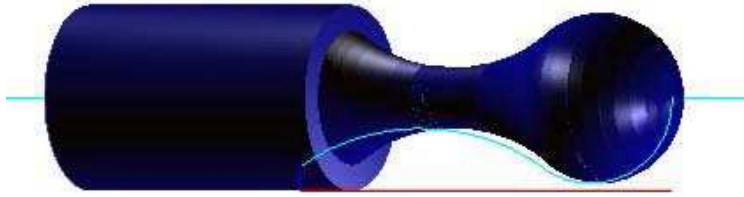
Hypotenuse Radius: 2500
Angle A: 40.0000
Angle B: [blank]
Side Opposite (Y): .1915
Side Adjacent (X): .1607

Buttons: Calculate, Clear



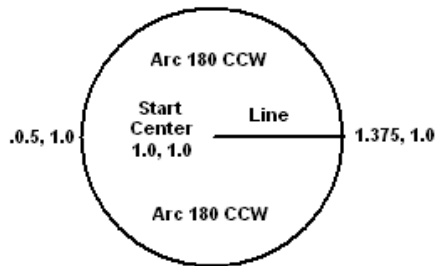
Adding it up for X and Y End points from 0,0
 Included Angle = IC
 Right Triangle = RT
 IC = 130 degrees
 RTX = 0.1607
 Adding the 0.25 Radius + RTX
 $X = 0.4107$
 RTY = 0.1915
 Oblique Triangle = OT
 IC = -80 degrees (Note: the Minus sign.)
 OT X = 0.8035 + RTX + .025 Radius = 1.2142
 RTY = 0.1915
 Just enter the IC, XY Start and End points for the Arc's.

This finished part using the above data.



Circle example:

The Circle is finished in two 180 degree Arc's, rotation is (CCW anti-clockwise).
If the Arc's were (-180 degrees) the rotation would be (CW clockwise).

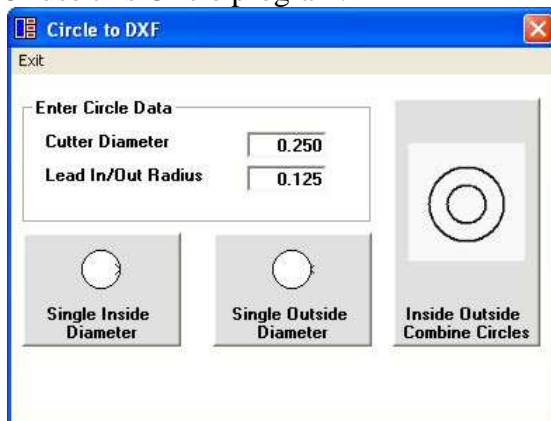


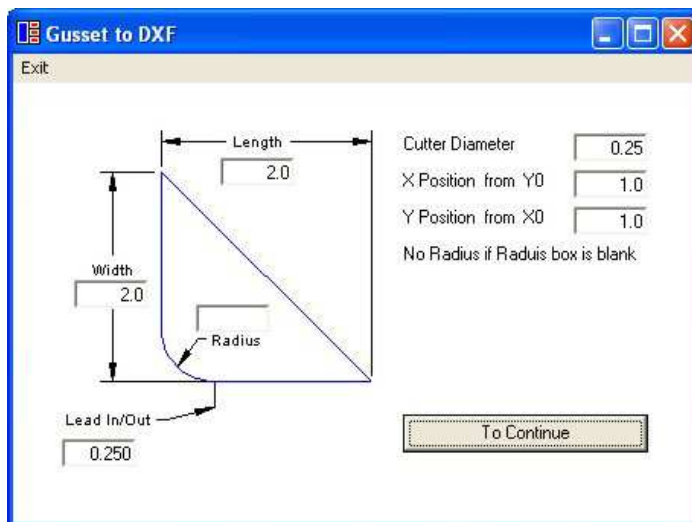
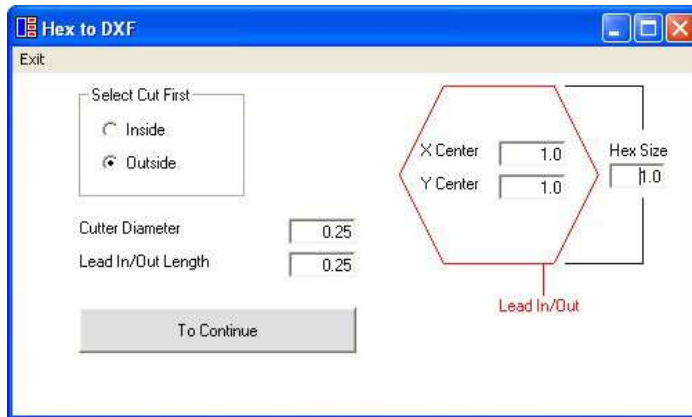
Note:

All XY points are from 0, 0 (Left Hand Corner)
Circle is a 1.0 Dia. Cutter is a 0.25 Dia.

1. XY Start point Circle Center 1.0, 1.0
2. XY End point for the Line = Circle - Cutter radius = 1.375, 1.000
3. XY End point for 180 degree Arc 0.625, 1.000
4. XY End point for 180 degree Arc 1.375, 1.000
5. This completes the Closed Polyline.

Or use this Circle program.





Note:

Use the CAD2Engrave, CAD2Lathe, or CAD2Drill programs from:
CNC Programming Software Tools (DXF Conversions) at:

<http://www.cad2gcode.com/>

For more information contact at:

Thinkcnc@hotmail.com

Mach 3 Mill and Mach 3 Turn at:

<http://www.artofcnc.ca>