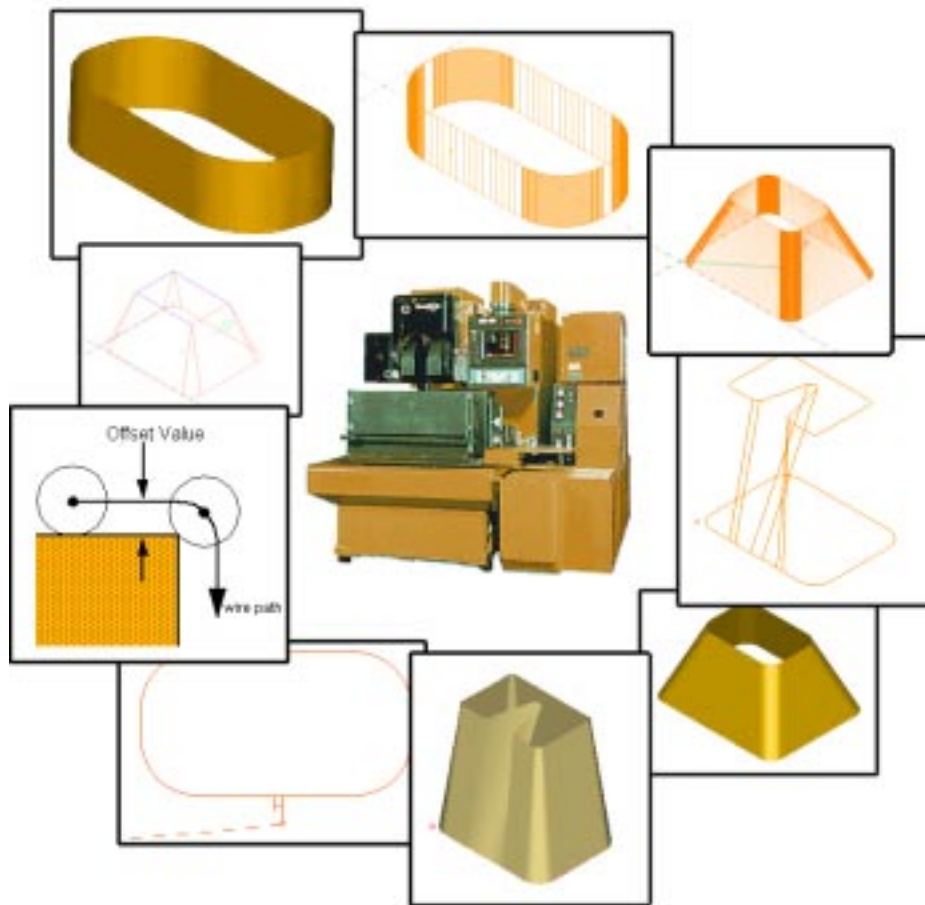


# OneCNC

2000 Series

## Manufacturing Software



## Tutorials

For Wire EDM

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**Version 1.02**  
(rev 28-6-01)

## **Australia**

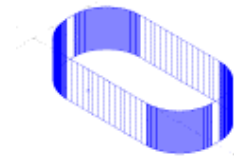
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# Wire EDM Tutorial 1

## Use 2D and Cut Using Wire EDM Closed Shape



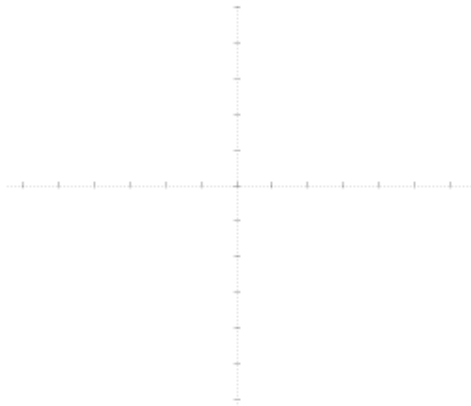
Note: This help uses mm values.

### Step 1. Create a New Drawing



Click the **new drawing icon** on the **standard toolbar**.

You should have a blank drawing ready to draw your wireframe and then surface it.



Now to make sure the NC file is clear



Click the **new NC icon** on the **NC editor toolbar**.

Click **Yes** or **No** to save your file.

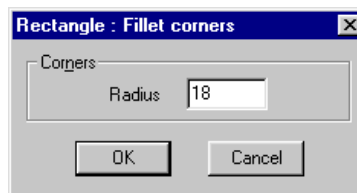
## Step 2. Create a Path

First draw the shape that you want to cut.

 Click the **line icon** on the **menu toolbar**.

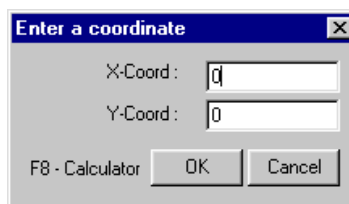
 Click the **rectangle icon** on the **line menu toolbar**.

The following dialogue will appear.



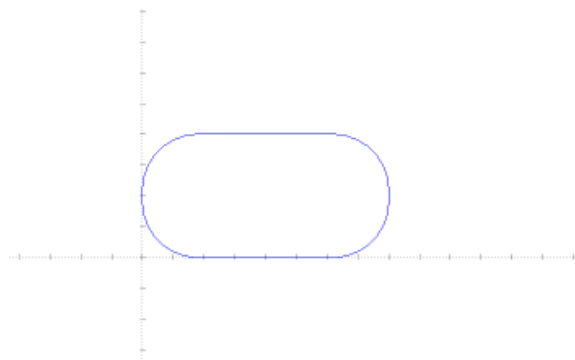
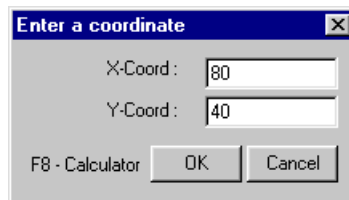
 Click the **position by coordinate** icon on the **position toolbar**.

Enter the following details and click **OK**.



 Click the **position by coordinate** icon on the **position toolbar**.

Enter the following details and click **OK**.



Click **cancel** to terminate the rectangle function.

### Step 3. Machining the Design

Draw a point where the drilled hole is.



Click the **home icon** on the **menu toolbar**.

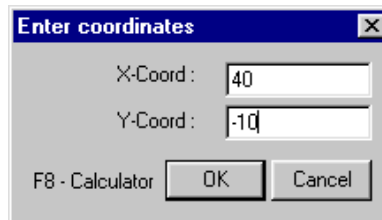
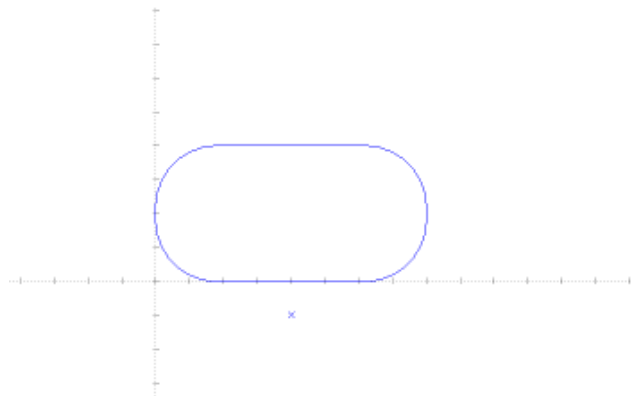


Click the **point** icon on the **menu toolbar**.



Click the **point by coordinate** icon on the **point menu toolbar**.

Enter the following details and click **OK**

A dialog box titled "Enter coordinates" with a close button (X) in the top right corner. It contains two input fields: "X-Coord:" with the value "40" and "Y-Coord:" with the value "-10". At the bottom, there is a label "F8 - Calculator" and two buttons: "OK" and "Cancel".

Click the **2-axis closed shape** icon on the **NC CAM toolbar**.

The following dialogue will appear.

Set the **required settings** then click **OK**.

**Closed Shape**

Skimming Passes  
Number of Passes: 1

Cutting Conditions  
Pass #: 1

Extra Codes  
Start Code: [ ]  
Stop Code: [ ]

Glue Stop  
Start Point: M00  
End Point: M01  
Glue Gap: 0.25

First/Last Lines from Custom  
First: None  
Last: None

Angle  
Code: A  
Degrees: 0

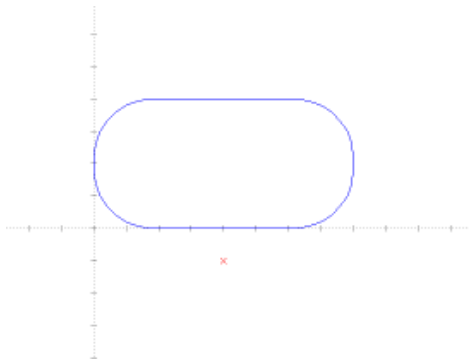
Rapid Moves  
 G00  G01

Approach/Depart  
 Circular  
Radius = 0.3  
 With Debur  
Distance = 0.1

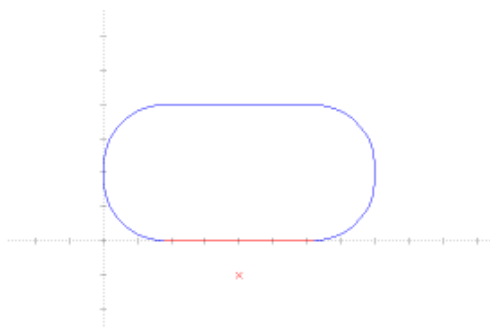
Other Settings  
Start Move: G00  
Material Height: 20

OK Cancel

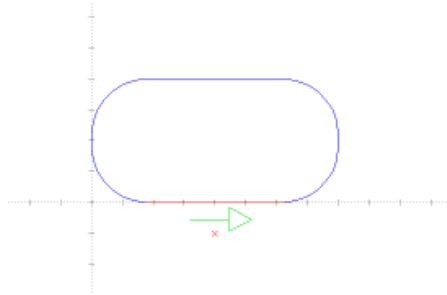
You will then be asked to select the start point which is your drill hole point, so select the **point**.



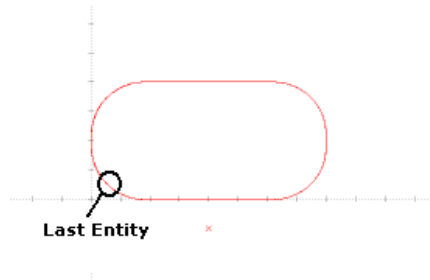
You will now be asked to select the chain by clicking the first entity which is the line above the drill hole.



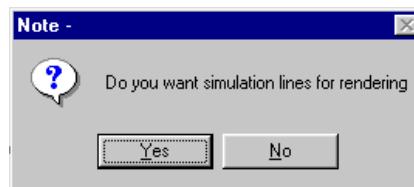
Point the arrow in the direction of the chain and click the **left mouse button**.



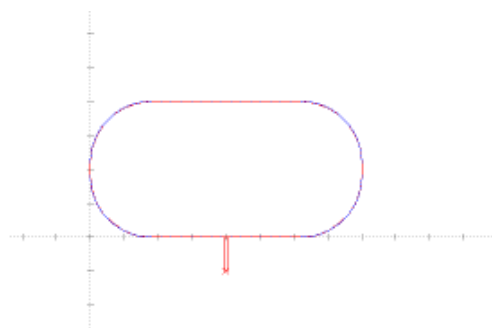
Select the last entity of the chain



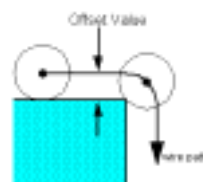
The following dialogue will appear, click **YES** for simulation lines.



The cut will then be automatically performed and the NC file is waiting in the NC editor.



The wire offset G41 and G42 is automatically applied from the side and direction information of the cursor when selecting the shape.



## Step 4. Changing the View

Now we will turn this in to a 3D object.



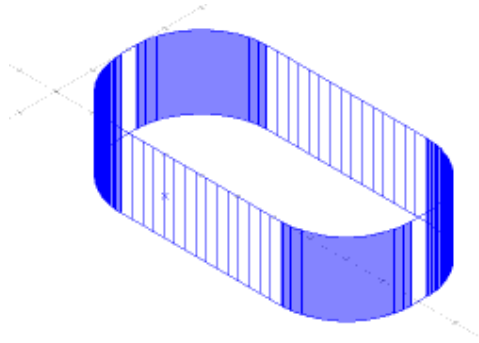
Click the **change 3D views icon** on the **menu toolbar**.



Click the **Isometric view icon** on the **3D views dialogue**.

You will now see it in isometric view.

If you added a material height to the dialogue you will see a 3D part.

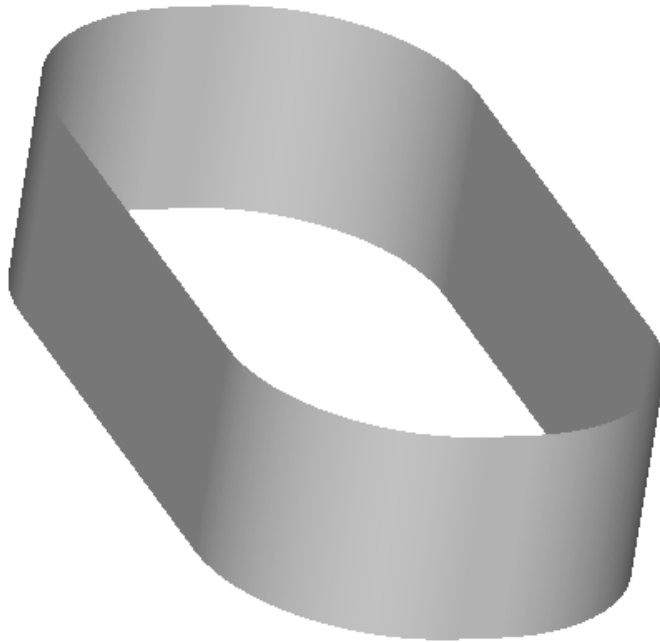


## Step 5. Rendering the Design



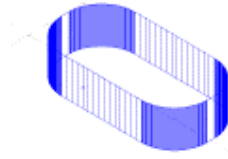
Click the [render](#) icon on the **standard toolbar**.

Use the left mouse button to **rotate** and the right mouse button to **pan**.



## Wire EDM Tutorial 2

Use 2D and Cut Using Punch Cut



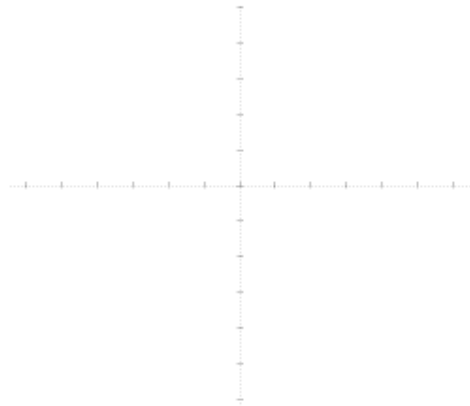
Note: the tutorial uses mm values.

### Step 1. Create a New Drawing



Click the **new drawing icon** on the **standard toolbar**.

You should have a blank drawing ready to draw your wireframe and then surface it.



Now to make sure the NC file is clear



Click the **new NC icon** on the **NC editor toolbar**.

Click **Yes** or **No** to save your file.

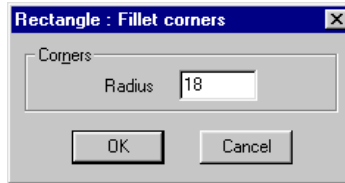
## Step 2. Create a Drawing

First draw the shape that you want to cut.

 Click the **line icon** on the **menu toolbar**.

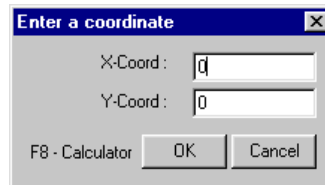
 Click the **rectangle icon** on the **line menu toolbar**.

The following dialogue will appear.



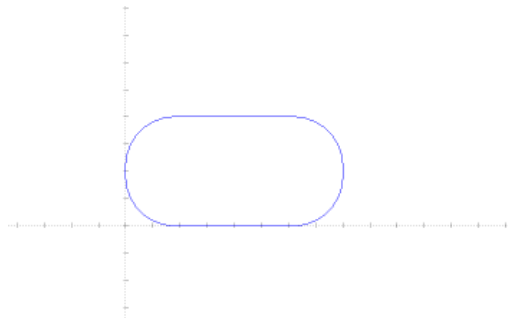
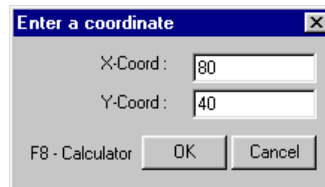
 Click the **position by coordinate icon** on the **position toolbar**.

Enter the following details and click **OK**.



 Click the **position by coordinate icon** on the **position toolbar**.

Enter the following details and click **OK**.



Click **cancel** to terminate the rectangle function.

### Step 3. Machining the Design

Draw a point where the drilled hole is.



Click the **home icon** on the **menu toolbar**.

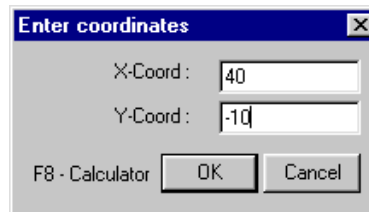
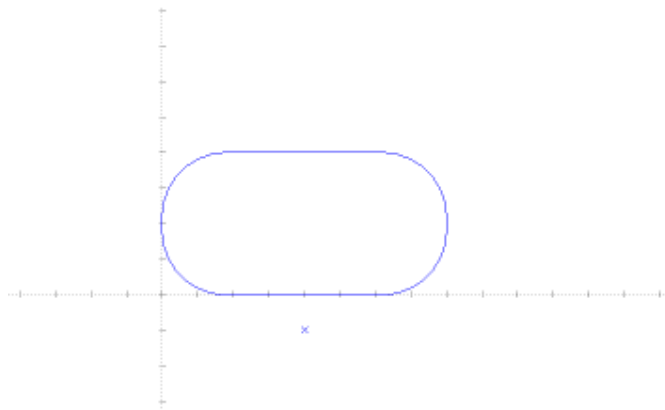


Click the **point** icon on the **menu toolbar**.



Click the **point by coordinate** icon on the **point menu toolbar**.

Enter the following details and click **OK**

A dialog box titled "Enter coordinates" with a close button (X) in the top right. It contains two input fields: "X-Coord:" with the value "40" and "Y-Coord:" with the value "-10". Below the fields are two buttons: "OK" and "Cancel". The text "F8 - Calculator" is visible to the left of the buttons.

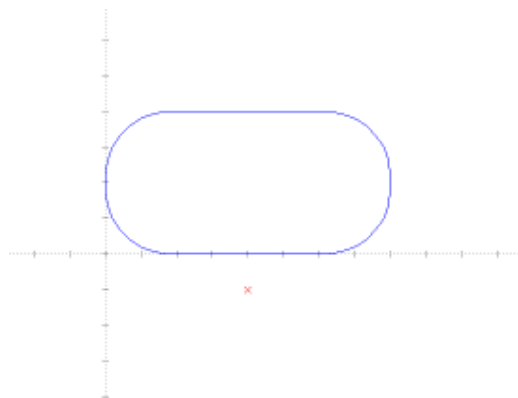
Click the **2 axis punch cut** icon on the **NC CAM toolbar**.

The following dialogue will appear

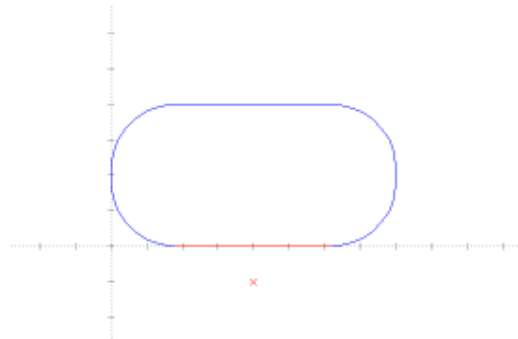
Set the required settings then click **OK**.



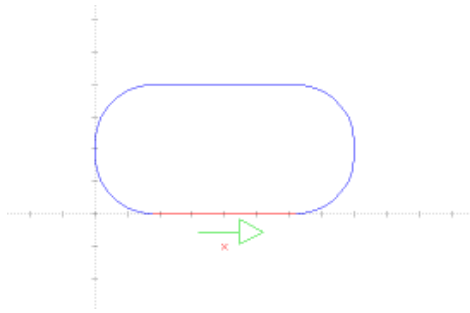
You will then be asked to select the start point which is your drill hole point, so select the **point**.



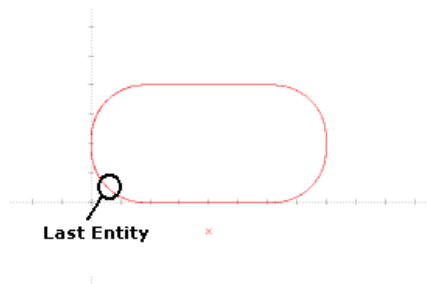
You will now be asked to select the chain by clicking the first entity which is the line above the drill hole.



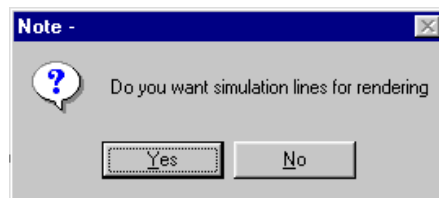
Point the arrow in the direction of the chain and click the **left mouse button**.



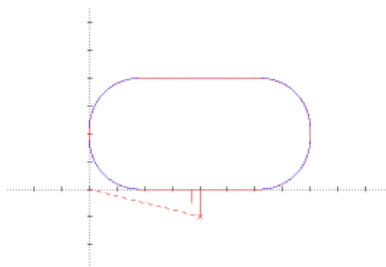
Select the last entity of the chain



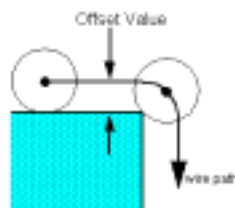
The following dialogue will appear, click **YES** for simulation lines.



The cut will then be automatically performed and the NC file is waiting in the NC editor.



The wire offset G41 and G42 is automatically applied from the cursor indicating arrow when selecting the shape to cut.



## Step 4. Changing the View

Now we will turn this in to a 3D object.



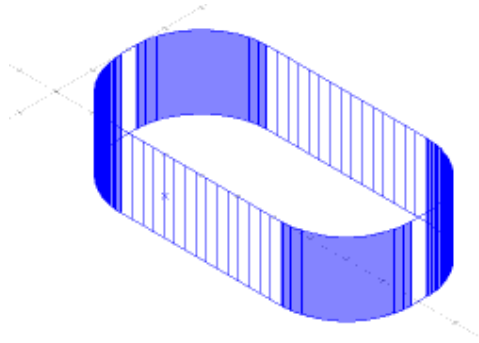
Click the **change 3D views icon** on the **menu toolbar**.



Click the **Isometric view icon** on the **3D views dialogue**.

You will now see it in isometric view.

If you added a material height to the dialogue you will see a 3D part.



## Step 5. Rendering the Design



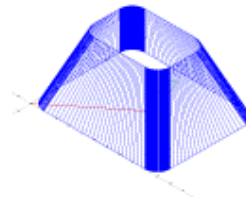
Click the **render icon** on the **standard toolbar**.

Use the left mouse button to **rotate** and the right mouse button to **pan**.



## Wire EDM Tutorial 3

Use 3D and Cut 4-axis without restriction  
Lines



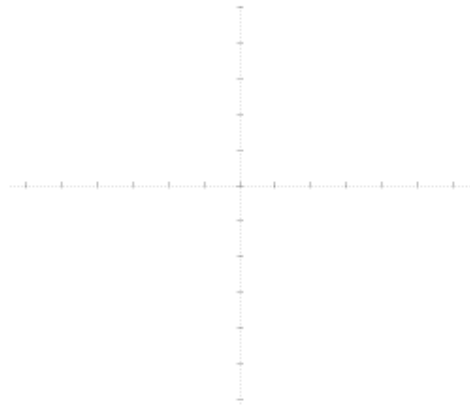
Note: This help uses mm values.

### Step 1. Create a New Drawing



Click the **new drawing icon** on the **standard toolbar**.

You should have a blank drawing ready to draw your wireframe and then surface it.



Now to make sure the NC file is clear



Click the **new NC icon** on the **NC editor toolbar**.

Click **Yes** or **No** to save your file.

## Step 2. Create a Wireframe



Click the **change 3D views icon** on the **menu toolbar**.



Click the **Isometric view icon** on the **3D views dialogue**.



Click the **line icon** on the **menu toolbar**.



Click the **rectangle icon** on the **line menu toolbar**.

Enter the following details and click **OK**.

Rectangle : Fillet corners

Corners

Radius: 10

OK Cancel



Click the **XY plane icon** on the **plane dialogue**.



Click the **coordinate icon** on the **position dialogue**.

Enter the following details and click **OK**.

Enter a coordinate

X-Coord: 0

Y-Coord: 0

Z-Coord: 0

F8 - Calculator OK Cancel



Click the **coordinate icon** on the **position dialogue**.

Enter the following details and click **OK**.

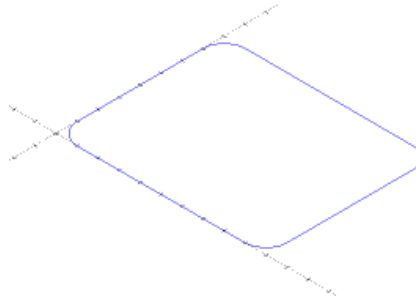
Enter a coordinate

X-Coord: 100

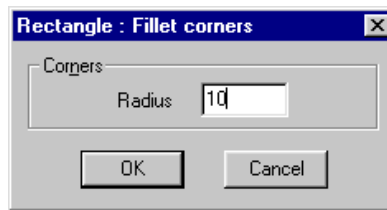
Y-Coord: 80

Z-Coord: 0

F8 - Calculator OK Cancel



Enter the following details and click **OK**.

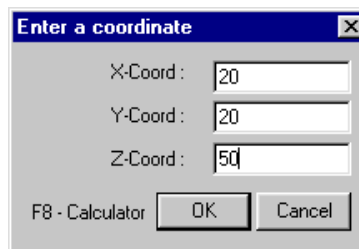


Click the **XY plane icon** on the **plane dialog**.



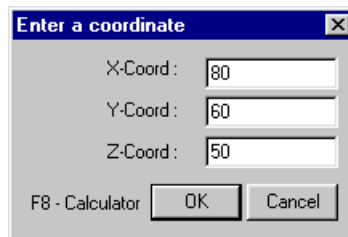
Click the **coordinate icon** on the **position dialog**.

Enter the following details and click **OK**.

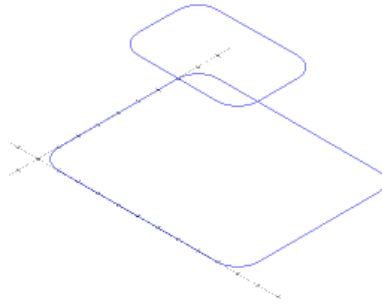


Click the **coordinate icon** on the **position dialog**.

Enter the following details and click **OK**.



Your drawing should look as follows:



click **cancel** on the rectangle radius dialogues to terminate the function.

Now to draw the drill hole.



Click the **home icon** on the **menu toolbar**.



Click the **point icon** on the **menu toolbar**.

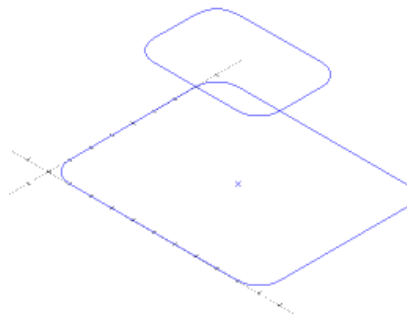


Click the **point by coordinate icon** on the **point menu toolbar**.

Enter the following details and click **OK**

Enter coordinates	
X-Coord :	50
Y-Coord :	40
Z-Coord :	0
F8 - Calculator	
OK Cancel	

Your drawing should now look as follows:



### Step 3. Cutting the Part

In this example we have 8 entities on the top profile and 8 entities on the bottom profile therefore we do not need to use constriction lines or paths. We want each entity to cut straight to the corresponding entity on the bottom so providing we pick the corresponding entities on the top and bottom when requested to do so it will cut correctly.



Click the **4-axis icon** on the **NC CAM toolbar**.

Enter the following details and click **OK**.

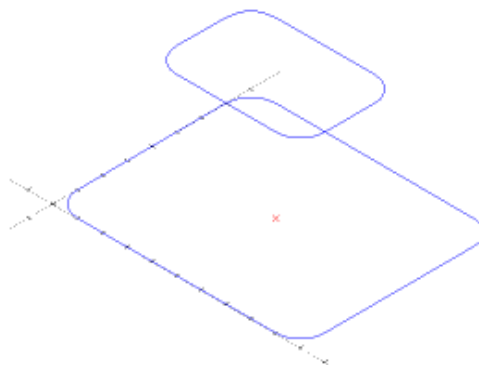
The '4-Axis Setup' dialog box is shown with the following settings:

Section	Parameter	Value
Geometry Setup	<input checked="" type="checkbox"/> Part programming	
	Height of Part	-20
	Distance to Lower Guide	0
	Bottom of Part to Upper Guide	-20
	<input type="checkbox"/> Activate Restriction Paths	
Code Generation	Max. Arc interpolation Error	0.001
	<input checked="" type="checkbox"/> U-V incremental	
Simulation	Layer	Four Axis Sim#
	Max. Distance between Lines	3

Buttons: OK, Cancel

You will note that we have not activated the restriction paths.

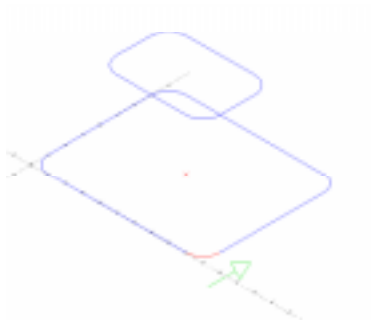
Click on the **drill hole/start point**, which is the point we created earlier.



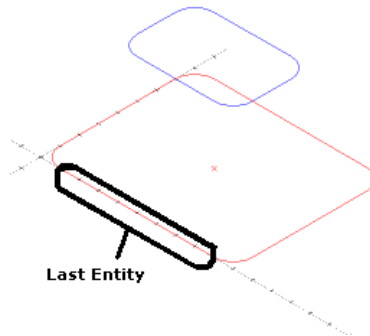
Now click on the **bottom corner** of the bottom rectangle.



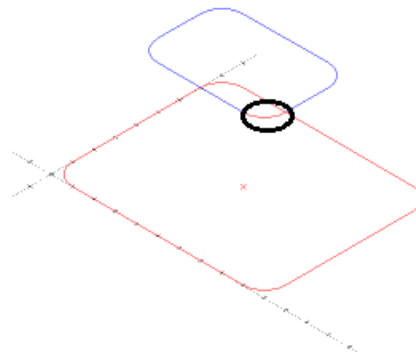
Set your **arrow** in the same direction as below.



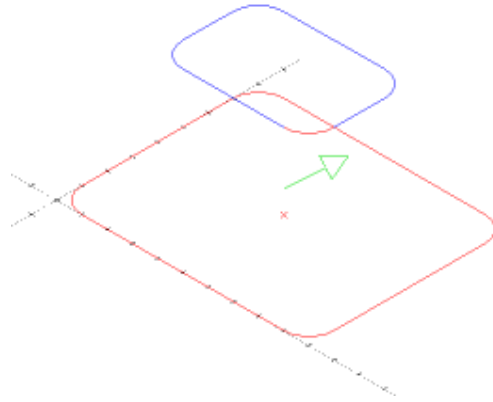
Select the **last entity** on the bottom chain.



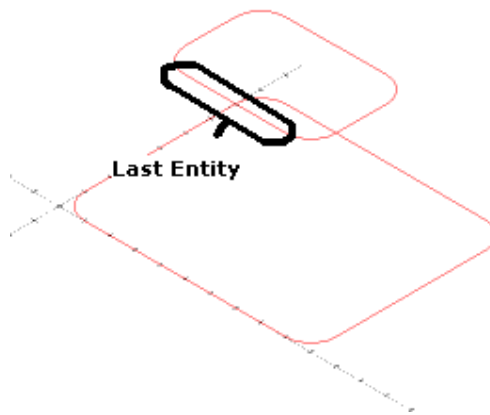
Select the **first entity** on the top rectangle.



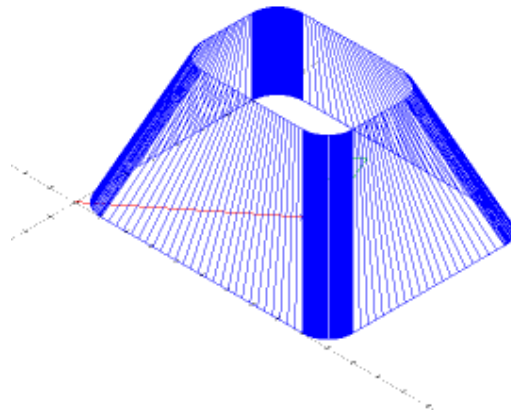
And set the **arrow** in the same direction as below



Select the last entity of the top chain.



Your code is then created and placed in the NC editor.

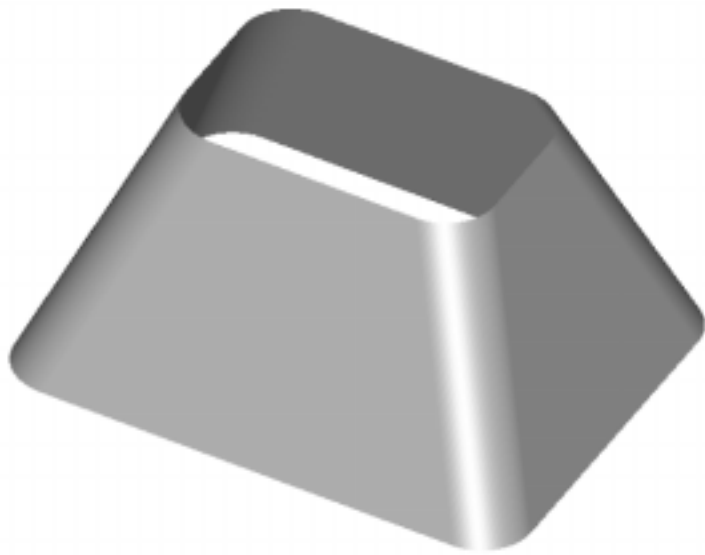


## Step 4. Rendering the Design



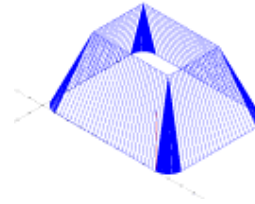
Click the [render](#) icon on the **standard toolbar**.

Use the left mouse button to **rotate** and the right mouse button to **pan**.



# Wire EDM Tutorial 4

## Use 3D and Cut 4-axis with Restriction Paths



This tutorial uses a top and bottom profile of unequal entities therefore we need to use restriction paths to control how the cut takes place. First you need to construct your wireframe geometry.

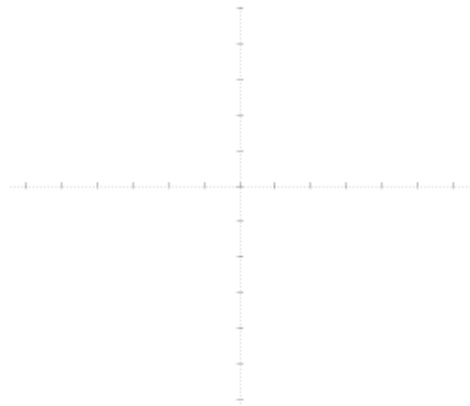
Note: This help uses mm values.

### Step 1. Create a New Drawing



Click the **new drawing icon** on the **standard toolbar**.

You should have a blank drawing ready to draw your wireframe and then surface it.



Now to make sure the NC file is clear



Click the **new NC icon** on the **NC editor toolbar**.

Click **Yes** or **No** to save your file.

## Step 2. Create a Wireframe



Click the **change 3D views icon** on the **menu toolbar**.



Click the **Isometric view icon** on the **3D views dialogue**.



Click the **line icon** on the **menu toolbar**.



Click the **rectangle icon** on the **line menu toolbar**.

Enter the following details and click **OK**.

Rectangle : Fillet corners

Corners

Radius: 10

OK Cancel



Click the **XY plane icon** on the **plane dialogue**.



Click the **coordinate icon** on the **position dialogue**.

Enter the following details and click **OK**.

Enter a coordinate

X-Coord: 0

Y-Coord: 0

Z-Coord: 0

F8 - Calculator OK Cancel



Click the **coordinate icon** on the **position dialogue**.

Enter the following details and click **OK**.

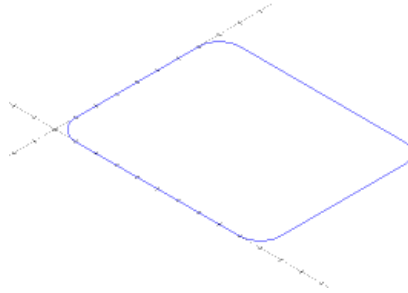
Enter a coordinate

X-Coord: 100

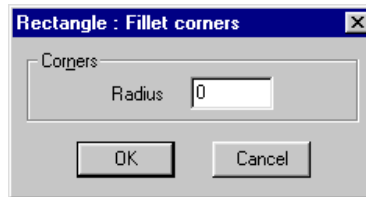
Y-Coord: 80

Z-Coord: 0

F8 - Calculator OK Cancel



Enter the following details and click **OK**.

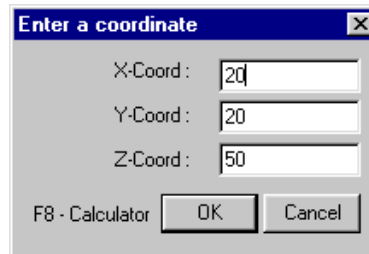


Click the **XY plane icon** on the **plane dialogue**.



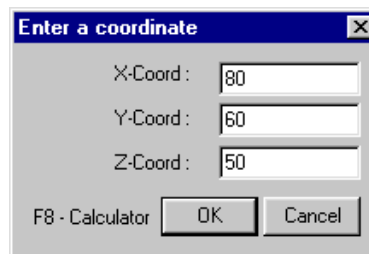
Click the **coordinate icon** on the **position dialogue**.

Enter the following details and click **OK**.



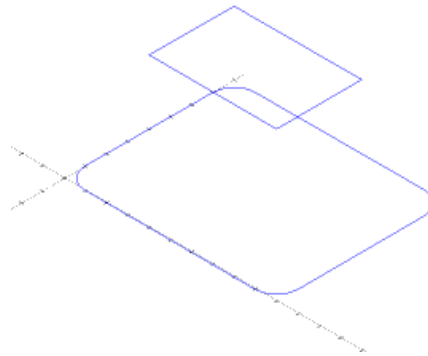
Click the **coordinate icon** on the **position dialogue**.

Enter the following details and click **OK**.



Your drawing will now look like this.

Click **cancel** on the rectangle radius dialogue icon.



Now to draw the drill hole.



Click the **home icon** on the **menu toolbar**.



Click the **point icon** on the **menu toolbar**.

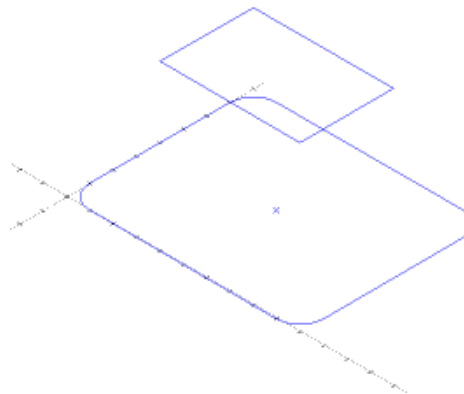


Click the **point by coordinate icon** on the **point menu toolbar**.

Enter the following details and click **OK**

Coordinate	Value
X-Coord	50
Y-Coord	40
Z-Coord	0

Your drawing should now look as follows:



### Step 3. Drawing Restriction Lines

We now need to draw the restriction lines by joining the end of the entities on the bottom profile to the end of the entities on the top profile.



Click the **home icon** on the **menu toolbar**.

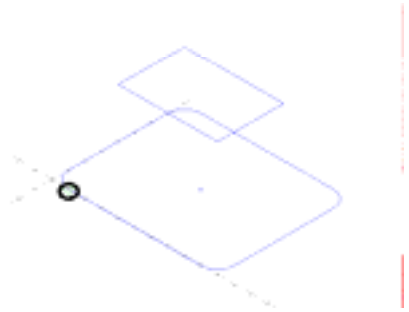


Click the **line icon** on the **menu toolbar**.

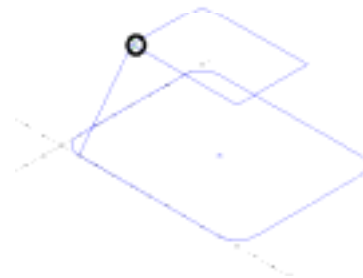


Click the **join lines icon** on the **line menu toolbar**

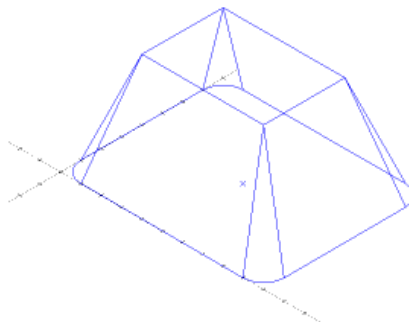
Select an **end of an entity**.



And join the line to the **corresponding top entity**.



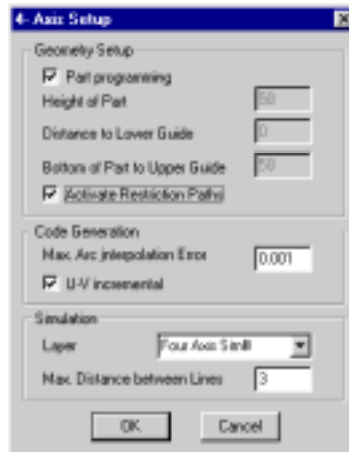
Now continue this process until all restriction lines are drawn and your part look like the one shown.



## Step 4. Cutting the Part

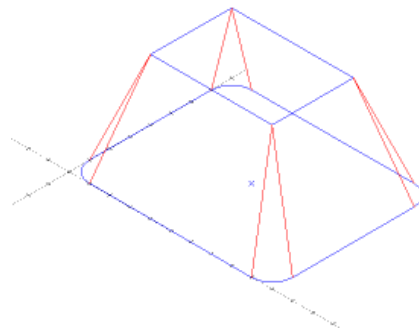


Click the **4-axis icon** on the **NC CAM toolbar**.

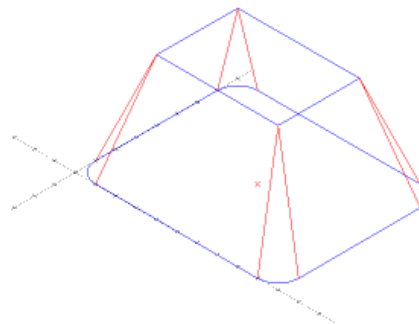


You will note that we have clicked the activate restriction paths.

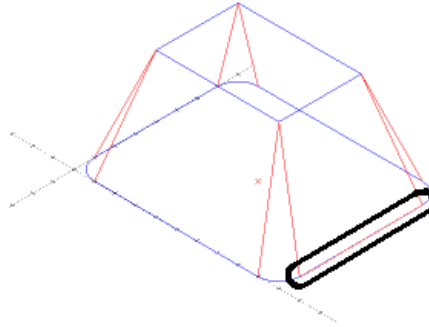
To set the restriction lines, **select them all** then click the **right mouse button**.



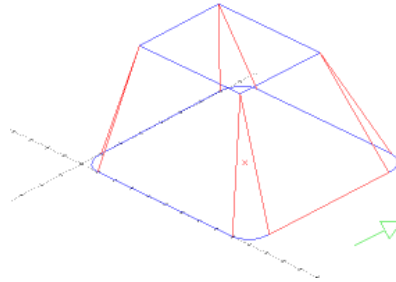
Now select your **start point** in the middle.



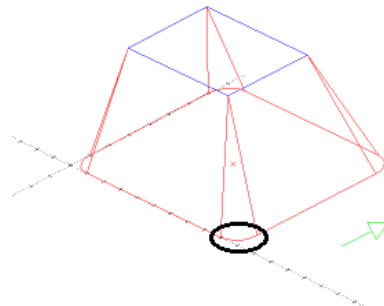
Select the **start point** shown here.



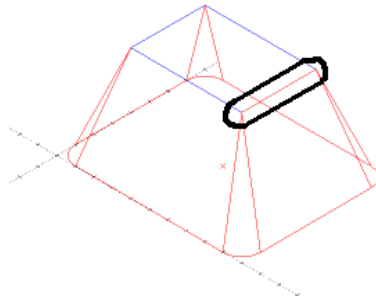
And set the **arrow** like so.



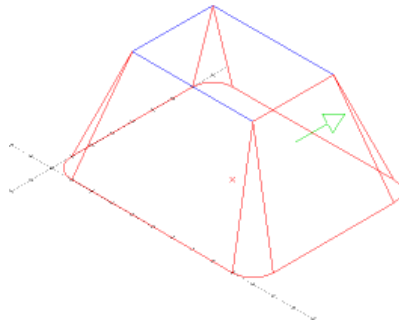
Now select the **end point** shown here and click **the right mouse button** to finish the selection.



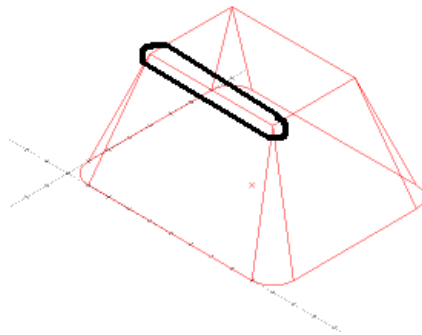
Now select the **first entity** of the top rectangle.



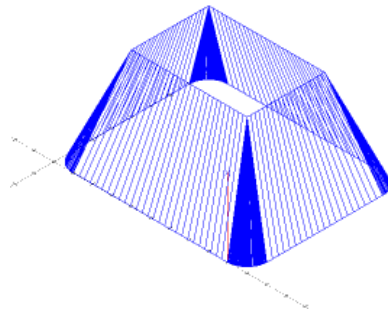
Set the **arrow** like so.



And select the **last entity** of the top rectangle.



The path is cut and the NC code is placed in the editor.



## Step 5. Rendering the Design



Click the [render](#) icon on the **standard toolbar**.

Use the left mouse button to **rotate** and the right mouse button to **pan**.

