

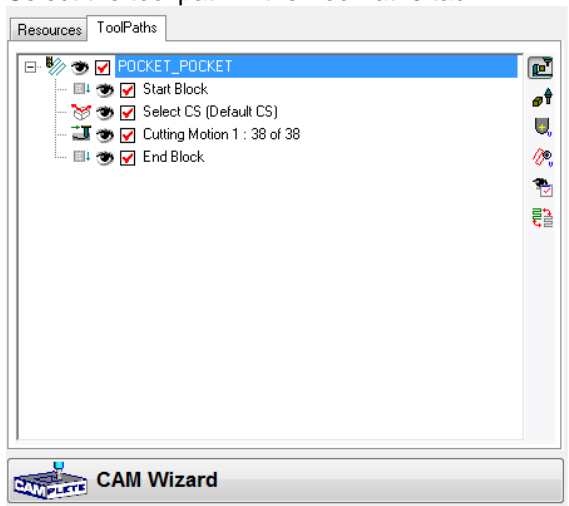
1.0 Overview

This document explains how to use CAMplete TruePath v4.2 to lock an X or Y axis and to spin the C-axis instead. This is intended for posting 3-axis programs, with no tilt angle on machines where one of the X or Y axes cannot travel over the entire C-axis table. Instead, it will allow the C-axis to spin instead. This only works with 3-axis programs with point-to-point motion and tool center point control enabled. Arcs must be converted to point-to-point motion.

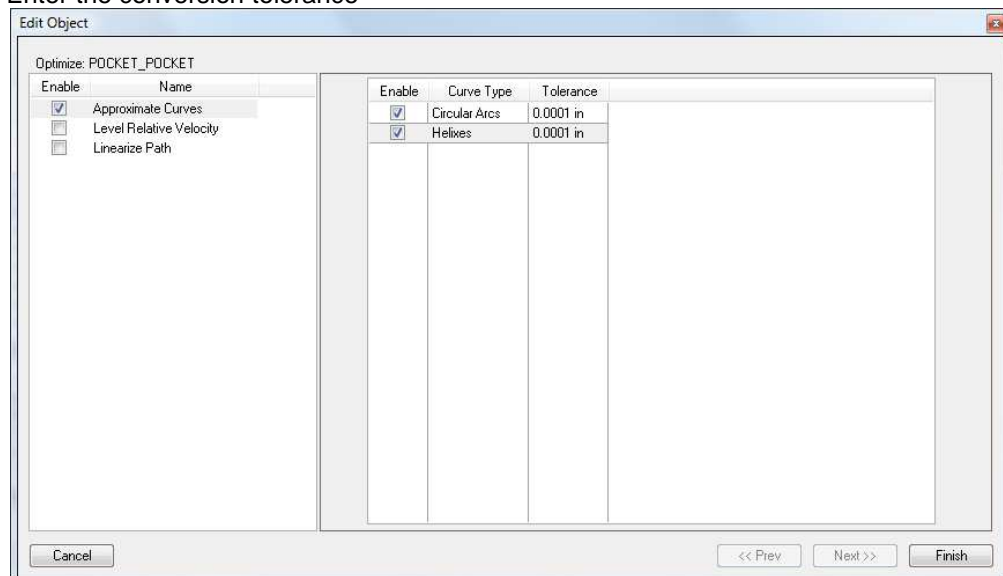
2.0 Preparing the Path

The tool path must be 3-axis with a 0,0,1 orientation vector (no tilt on the machine) and must not contain any arc moves. If the operation contains arc moves, it can be converted into arcs with the following method:

1. Select the tool path in the ToolPaths tab



2. Right click and select Optimize
3. Turn ON the Approximate Curves optimization
4. Turn OFF all other optimizations
5. In the Approximate Curves options, enable the Circular Arcs option and the Helixes option
6. Enter the conversion tolerance

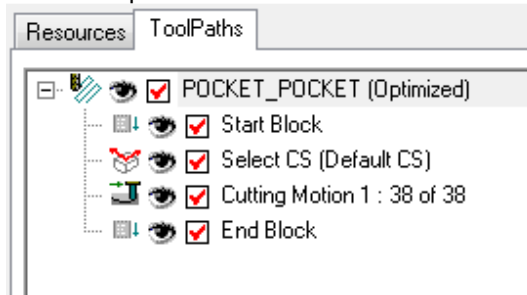


7. Click Finish
8. The path will be recomputed with point to point motion only

3.0 Locking a Linear Axis

Once the tool path does not contain any arcs, the axis locking can occur.

1. Select the path in the ToolPaths tab

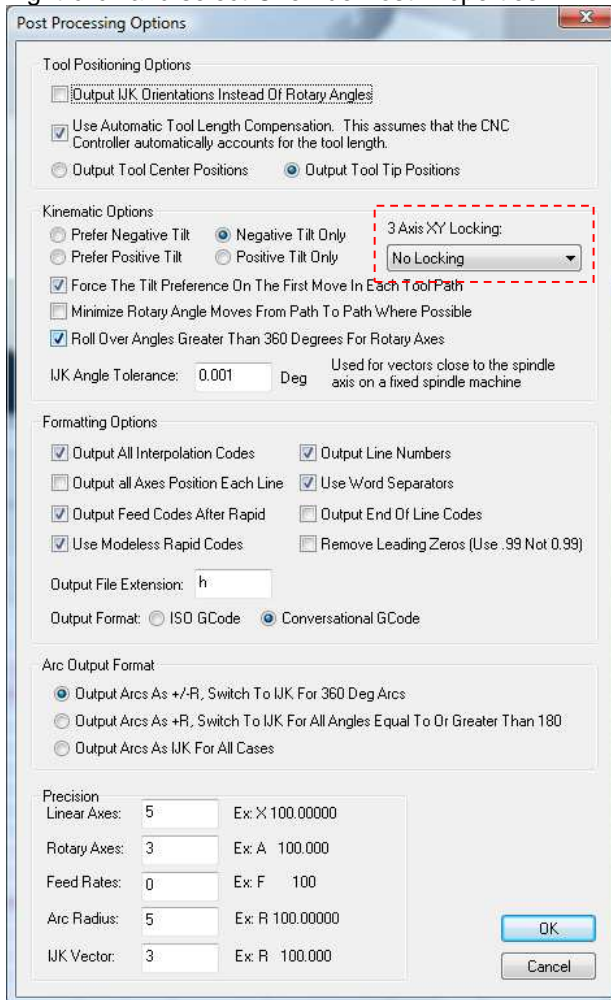


2. The 3-axis path will be posted with only XYZ moves. For example:

```
...  
61 L X-0.24398 Y-7.40556  
62 L X-0.25369 Y-7.41834  
63 L X-0.2627 Y-7.43162  
64 L X-0.27098 Y-7.44537  
65 L X-0.27852 Y-7.45953  
66 L X-0.28529 Y-7.47408  
67 L X-0.29127 Y-7.48897  
68 L X-0.29645 Y-7.50416  
69 L X-0.30081 Y-7.51961  
70 L X-0.30433 Y-7.53526  
71 L X-0.30701 Y-7.55108  
72 L X-0.30885 Y-7.56703  
73 L X-0.30983 Y-7.58304  
74 L X-0.30995 Y-7.59909  
...
```

Note: This example is posted with TCPC so the XY numbers are relative to the part and not the machine. However, since the C-axis is zero, this could over travel the machine if the Y cannot reach -7 inches of movement.

3. Right-click and select Override Post Properties



4. In the 3 Axis XY Locking section, you can choose the appropriate lock option.
 - a. No Locking – Will post in the normal manner with no C-Axis Spin
 - b. Lock X At 0 – Y Positive – Will post all moves at X 0 and spin the C-Axis and move the Y to positive values only
 - c. Lock X At 0 – Y Negative – Will post all moves at X 0 and spin the C-Axis and move the Y to negative values only
5. In this example, choose Lock X At 0 – Y Positive
6. Click OK and the path will be reposted
7. Now the path will leave X at 0, the C-axis will spin and Y will move in positive motion only:

```

...
61 L X-0.24398 Y-7.40556 C-181.887
62 L X-0.25369 Y-7.41834 C-181.959
63 L X-0.2627 Y-7.43162 C-182.024
64 L X-0.27098 Y-7.44537 C-182.084
65 L X-0.27852 Y-7.45953 C-182.138
66 L X-0.28529 Y-7.47408 C-182.186
67 L X-0.29127 Y-7.48897 C-182.227
68 L X-0.29645 Y-7.50416 C-182.262
69 L X-0.30081 Y-7.51961 C-182.291
70 L X-0.30433 Y-7.53526 C-182.313
    
```

```
71 L X-0.30701 Y-7.55108 C-182.328
72 L X-0.30885 Y-7.56703 C-182.337
73 L X-0.30983 Y-7.58304 C-182.34
74 L X-0.30995 Y-7.59909 C-182.336
```

...

Note: Again, this example is in TCPC coordinates. So the spinning C-axis will actually leave the machine's X-axis at 0 and only spin the C and move the Y to the positive side. (The C-180 essentially shifts the coordinate system of the part to the positive side of the machine)