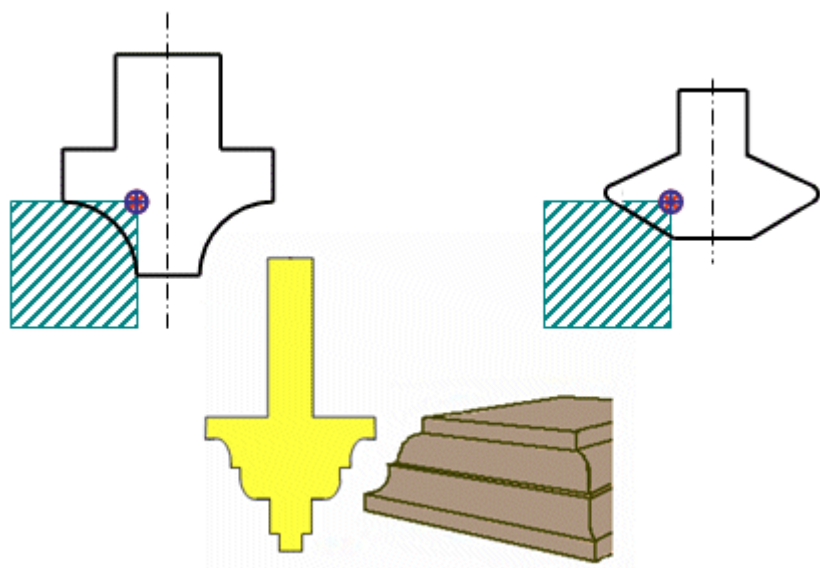



# User Defined Mill Tool Overview



The **User Defined Mill Tool** dialog lets you create corner-rounding tools and chamfering tools, as well as other custom shapes. You define multiple tracking points on the tool then, from the operation, select an appropriate tracking point to drive the cutter along the part boundary. Since the most common application for this type of tool is simple profiling, user defined tools are currently only available within the **PLANAR\_PROFILE** operation.

## Where do I find it?

Application	Manufacturing
Toolbar	Insert→Create Tool 
Menu	Insert→Tool[valid Type option]
Location in dialog box	Tool Subtype groupMILL_USER_DEFINED


# Create a User Defined Mill Tool

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To create a user-defined tool:

1. Click **Create Tool** .
2. From the **Type** list select **mill\_planar**.
3. Click **MILL\_USER\_DEFINED** .
4. Click **OK**.
5. Define the line and arc segments.

To define a new segment:

- a. Enter values for **Line Length**, **Line/Arc Start Angle**, **Arc Radius**, and **Arc Sweep**.
- b. Click **Add New Set**  to append the new segment to the end of the list.

**Note:**

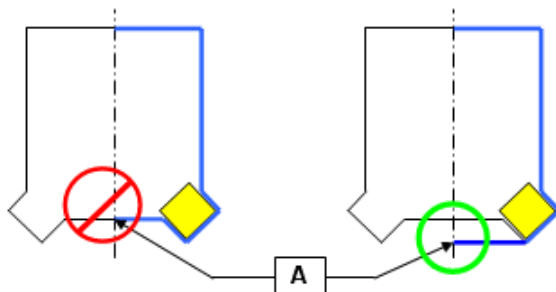
New segments are always added to the end of the list.

To modify a segment, select it in the list, change the values as desired.

To delete a segment, select it in the list, and click **Delete**.

**Note:**

The tool shape must move progressively upwards, from the tip of the tool (A), towards the shank without crossing over the center-line. The shape on the left in the figure below is invalid.



6. Click **Display** at any time to view the tool's shape.

**Note:**

When you Click **Display**, the tool is closed off with a horizontal line to the tool center-line.

You must be in the front view to see the tracking points accurately.

7. Define each tracking point of the tool to coincide with the 'setup gauge length' and the intended operations' **Adjust** offset (**PLANAR\_PROFILE** main dialog → **Tool**)

For more information on creating tracking points, see [Tracking Point](#).

8. Assign other values as required. For information on common tool parameters, see [Milling tools quick reference](#)

**Note:**

Currently, user defined mill tools are only available in the **PLANAR\_PROFILE** operation.

# User Defined Mill Tool Options

[Overview](#) [How To](#) Options [Related Topics](#)

Option	Valid Range	Description
<b>No.</b>	Integer 1 – 20	The system assigns a sequence number for each segment. There is a limit of 20 segments.
<b>Line Length (LL)</b>	$\geq 0$	Enter 0 if you don't want a line in the segment.
<b>Line/Arc Start Angle (LA)</b>	$0.00 \leq LA \leq 180$	When <b>Line Length</b> is specified, <b>Line/Arc Start Angle</b> controls the direction of the line segment. The angle value is measured from 0 degrees at the horizontal position, and counter clockwise is positive. If an <b>Arc Radius</b> is specified, <b>Line/Arc Start Angle</b> determines the starting direction of the arc.
<b>Arc Radius (AR)</b>	$\geq 0$	Enter 0 if you don't want an arc in the segment.
<b>Arc Sweep (AS)</b>	If <b>Arc Radius</b> > 0, $-180 \leq \text{Arc Sweep} \leq 180$	This measures the increment from the arc's beginning at the <b>Line/Arc Start Angle</b> to the value at the end of the arc segment. . A positive <b>Arc Sweep</b> angle sweeps the arc in a counter clockwise direction from the <b>Line/Arc Start Angle</b> . A negative angle sweeps the arc in a clockwise direction.
<b>Note:</b> You can't create an arc with an end point that is closer to the tool shank than the tool tip.  If the <b>Arc Radius</b> value is zero, <b>Arc Sweep</b> is ignored		
<b>Tracking Points</b>		The tracking point positions the tool along the part boundary. The tracking point is specified within the operation as a drive point.

For more information on tool parameters, see [Milling Tool Parameters](#)

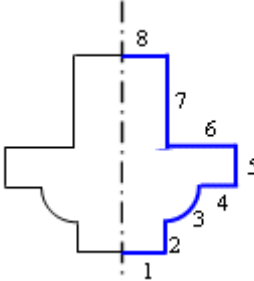
# User Defined Mill Tool — Example Definitions

[Overview](#)
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The following examples show the entries required to create sample tools.

Corner Rounding Tool					
No.	Line Length	Angle	Radius	Sweep	
1	2.000	0.000	0.000	0.000	
2	line segment and a tangent arc segment. <b>Angle</b> = 90.000 defines a vertical start angle. <b>Sweep</b> = negative value defines a Clockwise arc sweep.	3.000	90.00	3.000	—90.00
3	2.000	0.000	0.000	0.000	
4	4.00	90.00	0.000	0.000	
5	4.000	180.00	0.000	0.000	
6	20.000	90.00	0.000	0.000	
7	3.000	180.00	0.000	0.000	

Chamfering Tool				
No.	Line Length	Angle	Radius	Sweep
1	3.000	0.000	0.000	0.000
2	16.000	17.5.00	1.000	145.00
3	16.000	162.50	0.000	0.000
4	20.00	90.000	0.000	0.000
5	3.000	180.00	0.000	0.000

Wood Router Bit				
No.	Line Length	Angle	Radius	Sweep
1	3.000	0.000	0.000	0.000
2 line segment only	2.000	90.00	0.000	0.000
3 non-tangent arc segment only <b>Angle</b> = 0.000 defines a horizontal start angle. Arc sweep angle of positive 90 degrees is Counter-Clockwise.	0.000	0.000	3.000	90.000
4 <b>Angle</b> = 0.000 defines a horizontal line. If you don't enter a value, the system assumes you want tangency, and would initialize the value at 90.	2.000	0.000	0.000	0.000
5	4.000	90.00	0.000	0.000
6	4.000	180.00	0.000	0.000
7	20.000	90.00	0.000	0.000
8	4.000	180.00	0.000	0.000