

Step-by-step guide

Create a custom tool

Populate a digital tool library by creating a custom tool from scratch.

Learning objectives:

- Create a new milling tool.
- Edit tool parameters.
- Create cutting presets.

	Name ^	Diameter
▼ Learn CAM Sample - IN		
	CAT40 ER32 COLLET CHUCK X 2-1/2" GAGE LEN...	
	CT40 - 0.125 x 1.38 End Mill Holder	
	1 - Ø1/4" (1/4" Flat Endmill)	0.25 in
	2 - Ø1/4" (Amana Tool HSS1633 HSS Spiral Al...	0.25 in
	3 - Ø1/2" (1/2in End Mill)	0.5 in

The completed exercise

1. Open a new Untitled design and navigate to the Manufacture workspace. Open the Tool Library dialog by clicking Manage> Tool Library.

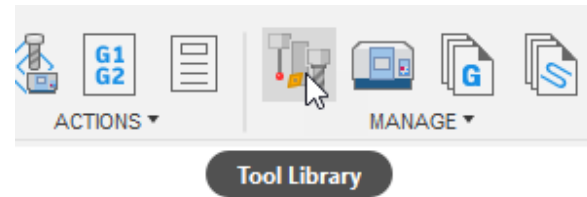


Figure 1. Open the Tool Library dialog

2. Navigate to and open the Learn CAM Sample – IN tool library you created in a previous video.

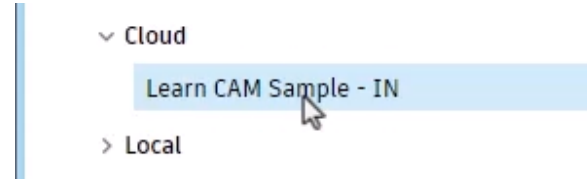


Figure 2. Open the tool library

3. In the previous video, you copied and pasted two existing tools into this tool library. However, you can also create new tools from scratch. Click the plus icon to create a new tool.

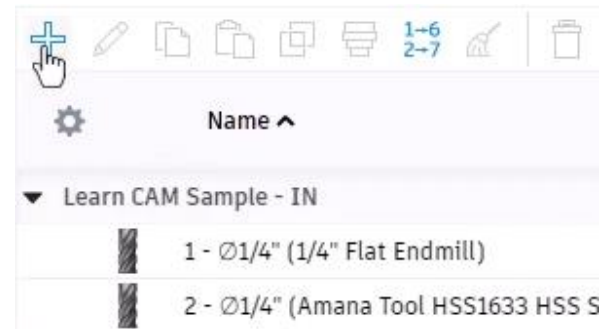


Figure 3. Create a new tool

4. Select the Flat end mill option in the dialog's Milling section.

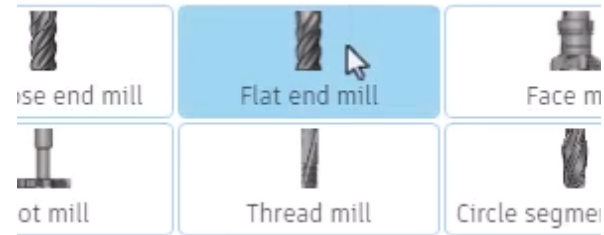


Figure 4. Select the tool type

5. In the dialog's General tab, enter **1/2in End Mill** into the Description box. Because the details need to match a specific physical tool, make sure you enter the appropriate vendor, product ID, and product link information.

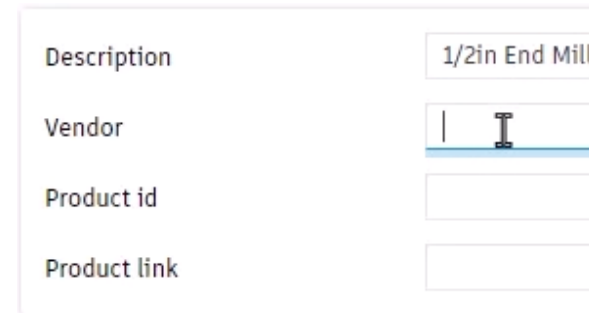
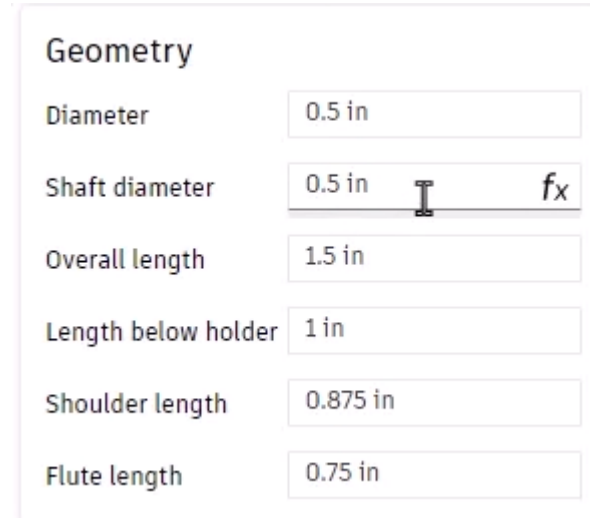


Figure 5. Customize the general information

6. Continue to the Cutter tab and enter **0.5 in** into the Diameter box. Press Enter. Notice that the Shaft diameter value automatically updates to match the Diameter value because it is driven by an equation. The FX icon in the Shaft diameter box indicates that this value is driven by an equation until you override it. Continue to customize the information in the Cutter tab so that the digital tool matches a physical tool.



Geometry	
Diameter	0.5 in
Shaft diameter	0.5 in f_x
Overall length	1.5 in
Length below holder	1 in
Shoulder length	0.875 in
Flute length	0.75 in

Figure 6. Customize the tool's geometry

7. Continue to the Holder tab, then locate the CT40 – 0.125 x 1.38 End Mill Holder in the left column. Click the holder to highlight it. If you have any holders saved to your custom tool library, you can choose them in the dialog's left column.





	BT40 - B4C5-1000
	BT40 - B4C6-0016
	CT40 - 0.125 x 1.38 En...
	CT40 - 0.125 x 2.36 En...
	CT40 - 0.125 x 4.00 En...

Figure 7. Choose a holder





8. Click Select holder to add it to the tool. If you want to extract the holder and save it to your tool library, you can click Extract holder.

Info	
Description	CT40 - 0.125 x 1.38
Product ID	C40S6-0125
Product link	
Vendor	Lyndex
Gauge length	1.38 in

Select holderExtract holderRemove h

Figure 8. Click Select holder

9. Continue to the Cutting data tab and notice that you can create cutting presets. Click the plus icon to create a new preset.



Cutting data

Default preset

Figure 9. Click the plus icon

10. Name the new preset as **AL Rough** to indicate that it will be used to rough aluminum.

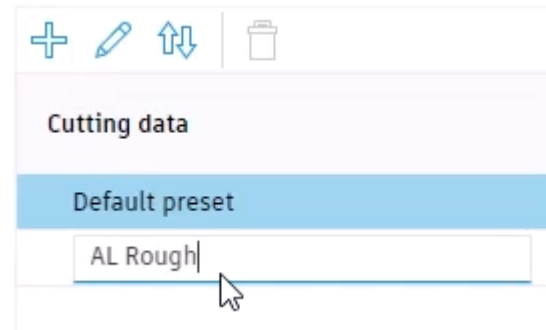


Figure 10. Name the preset

11. Enter **8000 RPM** into the Spindle speed box and notice that several other parameters automatically update because they are driven by equations that include the Spindle speed value.

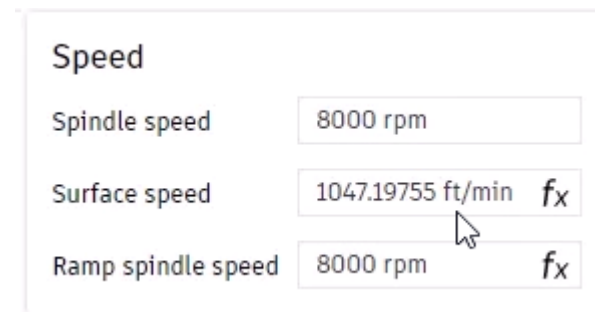


Figure 11. Enter the Spindle speed value

12. Enter **60 in/min** into the Cutting feedrate box and notice the other values that automatically update.

Feedrates		
Cutting feedrate	60 in/min	
Feed per tooth	0.00187 in	f_x
Lead-in feedrate	60 in/min	f_x
Lead-out feedrate	60 in/min	f_x
Transition feedrate	60 in/min	f_x

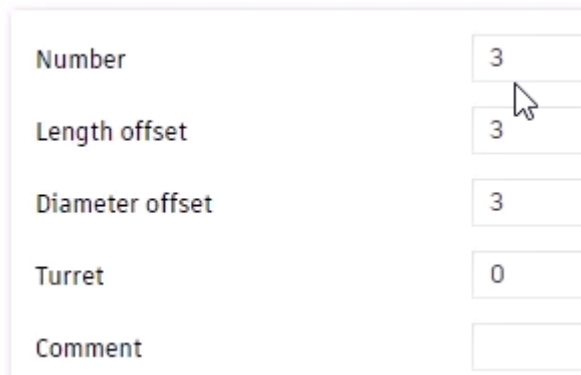
Figure 12. Adjust the Cutting feedrate value

13. You can manually override an equation by typing a value into the box. In the image on the right, the Lead-in feedrate was reduced from 60 in/min to **40**. After you press Enter, the f_x icon disappears to indicate that it is not driven by an equation anymore.

0.00187 in	f_x
40	
60 in/min	f_x

Figure 13. Modify an equation-driven value

14. Continue to the Post processor tab and notice that the tool is automatically given the tool changer's next available slot number. In this case, this new tool is added to slot number 3.



A screenshot of a tool configuration dialog box. It contains five input fields with the following labels and values: 'Number' with value '3', 'Length offset' with value '3', 'Diameter offset' with value '3', 'Turret' with value '0', and 'Comment' which is empty. A mouse cursor is pointing at the 'Number' field.

Number	3
Length offset	3
Diameter offset	3
Turret	0
Comment	

Figure 14. Verify the tool's number

15. Click the dialog's Accept.

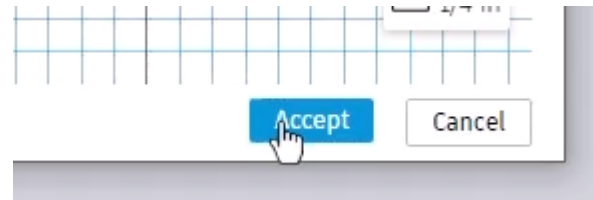


Figure 15. Click Accept

16. Notice the tool you created is added to the tool library. If you extracted any tool holders in Step 8, these will also be displayed inside the tool library.

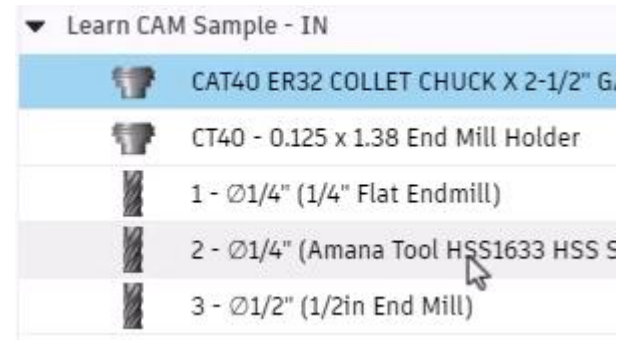


Figure 16. Inspect the tool library

17. The tool library is automatically saved to the Cloud. Close the Tool Library dialog.



Figure 17. Close the dialog