

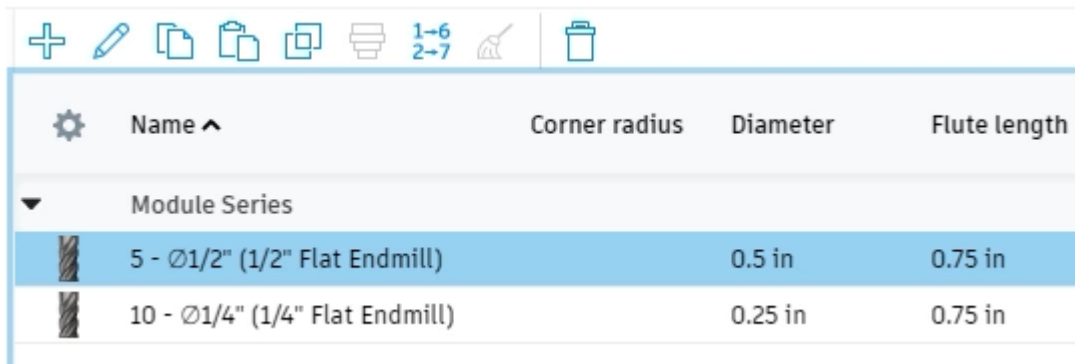
Step-by-step guide

Create a tool library

Create a new tool library, then populate it with tools copied from a different library and tools created from scratch.

Learning objectives:

- Create a new tool library.
- Create a custom tool.
- Copy and paste tools.
- Update feeds and speeds.



The screenshot shows the Autodesk tool library interface. At the top, there is a toolbar with icons for adding, editing, copying, pasting, deleting, and other functions. Below the toolbar is a table with the following columns: Name, Corner radius, Diameter, and Flute length. The table is titled 'Module Series' and contains two rows of tool data.

	Name ^	Corner radius	Diameter	Flute length
▼	Module Series			
	5 - Ø1/2" (1/2" Flat Endmill)		0.5 in	0.75 in
	10 - Ø1/4" (1/4" Flat Endmill)		0.25 in	0.75 in

The completed exercise

1. Open a new Untitled design in Fusion 360. Use the workspace picker to navigate to the Manufacture workspace.

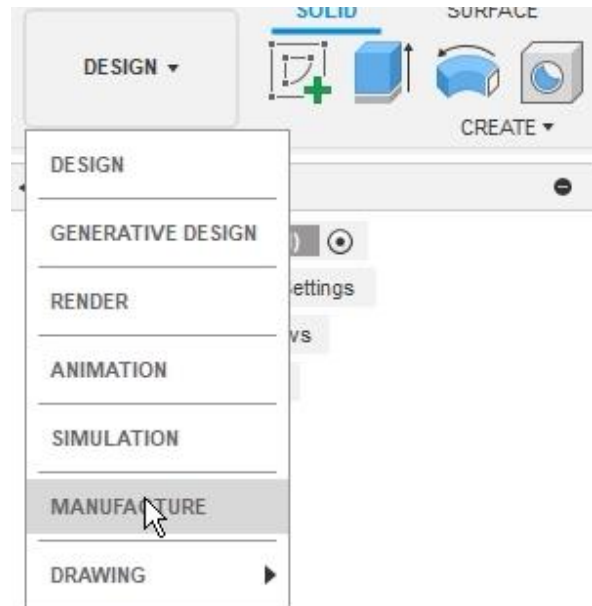


Figure 1. Open a new design and navigate to the Manufacture workspace

2. If the design's units are not set to inches, click the Browser's Change Active Units and choose Inch from the dialog's menu.

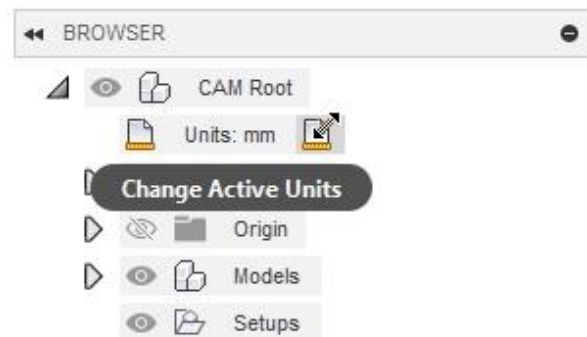


Figure 2. Change the design's units

3. Click Manage> Tool Library.

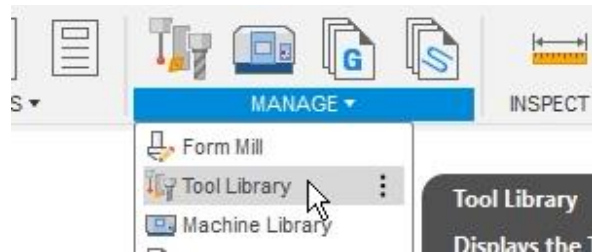


Figure 3. Open the Tool Library

4. Notice that the Tool Library dialog's left column has a Documents section. The current document's tools will be added to this section and will stay with the document when it is saved. You should always reuse the tools in the Documents section whenever possible. Your custom tool libraries can be saved in the Cloud or on your local machine. You should save on the Cloud if you access your tool libraries using multiple computers.

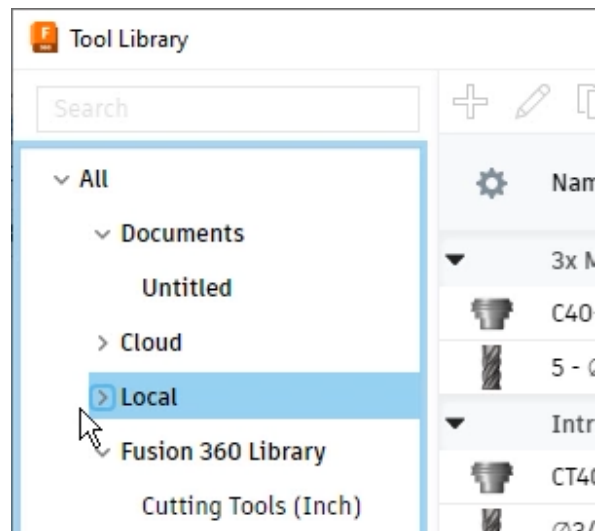


Figure 4. Notice the various tool library locations

5. If you don't see the option to save your tool library to the Cloud, then it needs to be activated in your user preferences. Click on your photo or initials in the screen's top right corner and choose Preferences from the menu.

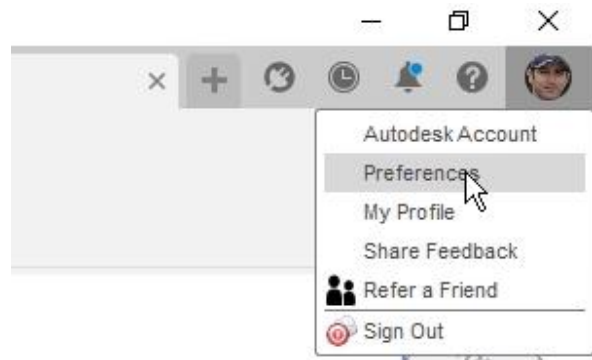


Figure 5. Open your user preferences

6. Navigate to the dialog's Manufacture section.

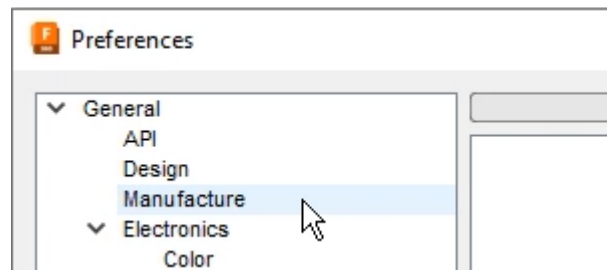


Figure 6. Navigate to the Manufacture section

7. Activate the Enable Cloud Libraries option, then OK the dialog.

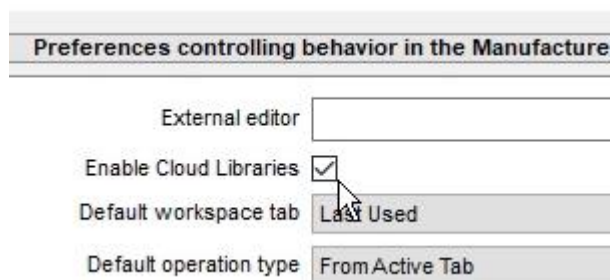


Figure 7. Enable the Cloud libraries

8. To create a new tool library on the Cloud, right-click the Cloud category and choose New library from the menu.

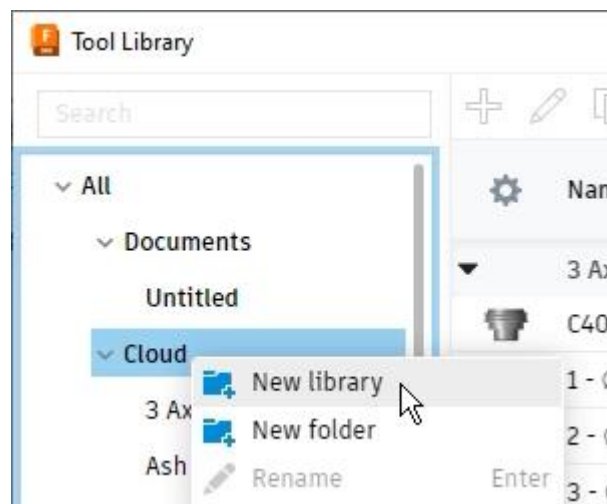


Figure 8. Create a new Cloud library

9. Rename the new library as **Module Series**, then press Enter. After renaming the library, Fusion 360 rearranges the Cloud libraries in alphabetical order.

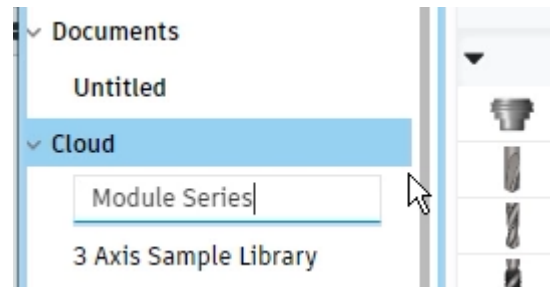


Figure 9. Rename the new library

10. You can populate your new tool library with tools that you create from scratch or you can copy and paste from an existing tool library. Activate the Fusion 360 Library.

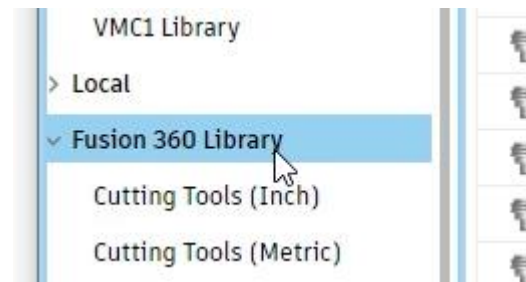


Figure 10. Activate the Fusion 360 Library

11. Activate the Filters tab in the dialog's right column. Choose the Milling filter in the Tool category section, then choose the Flat end mill option in the Type section.

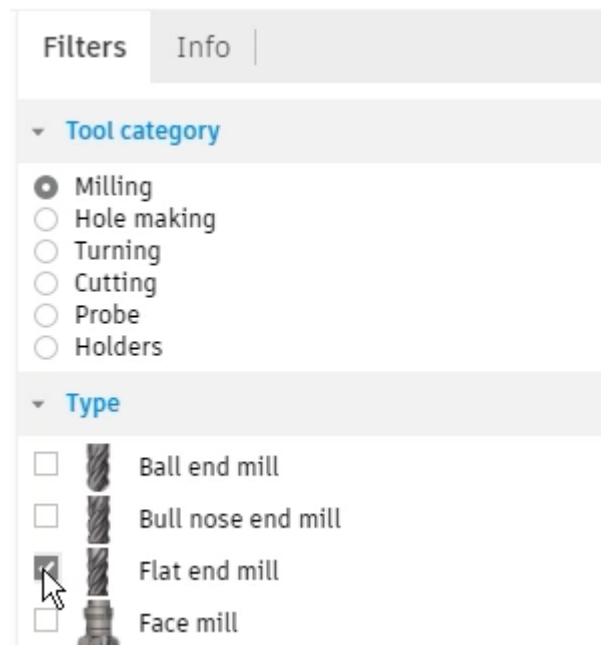


Figure 11. Filter the tool library

12. Choose the 1/4" Flat Endmill option from the Milling Tools (Inch) section.

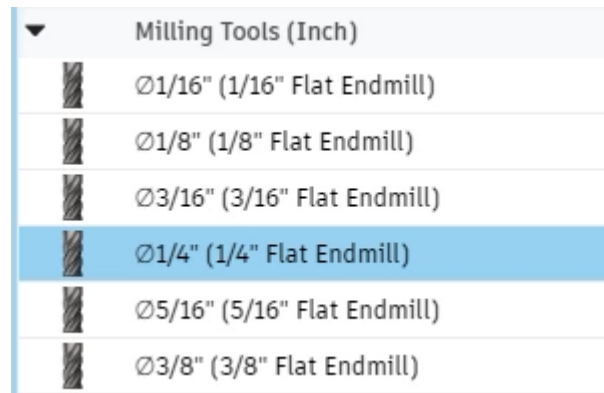


Figure 12. Select the tool

13. At the bottom of the dialog, notice that the tool has several cutting presets. These presets have predetermined feeds and speeds that are optimized for different materials.

Cutting data	Spindle speed	Surface speed
Plastics - Roughing	11459 rpm	750 ft/min
Plastics - Finishing	11459 rpm	750 ft/min
Stainless Steel -  otting	3056 rpm	200 ft/min
Stainless Steel - Roughing	3056 rpm	200 ft/min
Stainless Steel - Finishing	3056 rpm	200 ft/min

Figure 13. Notice the tool presets

14. Right-click the tool you selected and choose Copy tool from the menu.

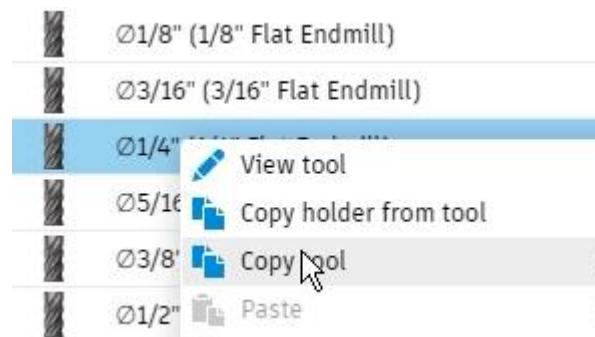


Figure 14. Copy the selected tool

15. Return to the Module Series tool library.

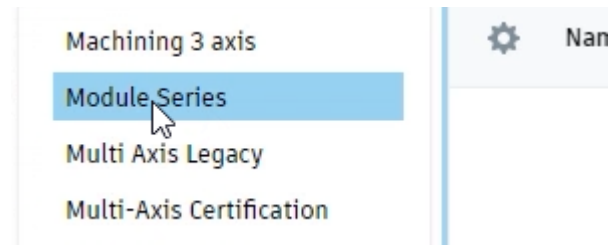


Figure 15. Return to your new tool library

16. Right-click in the new tool library and choose Paste tool from the menu.

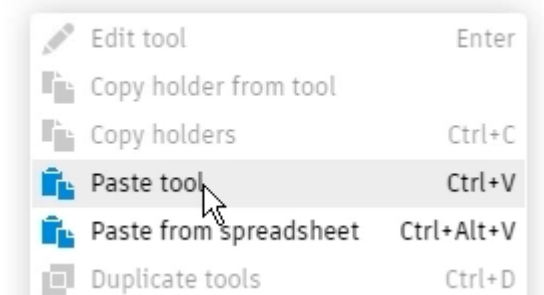


Figure 16. Paste the copied tool into the library

17. Clear the filters by clicking the X icon.

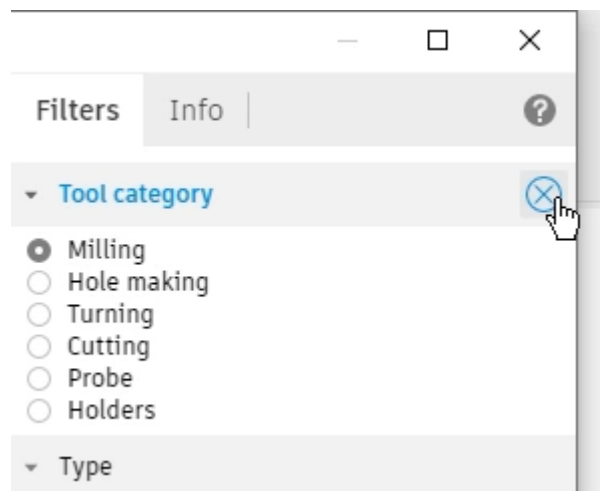


Figure 17. Clear the filters

- 18.** You can edit the tool by right-clicking it and choosing Edit tool from the menu.

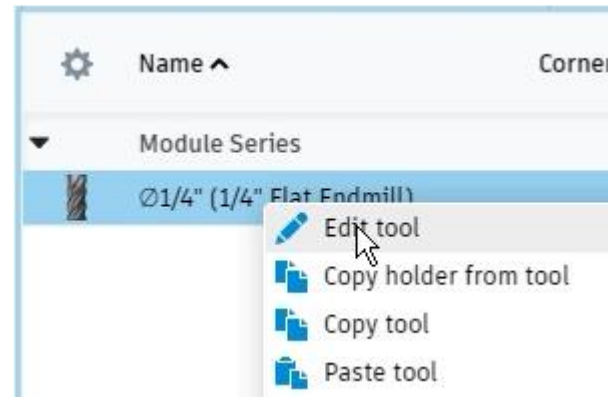
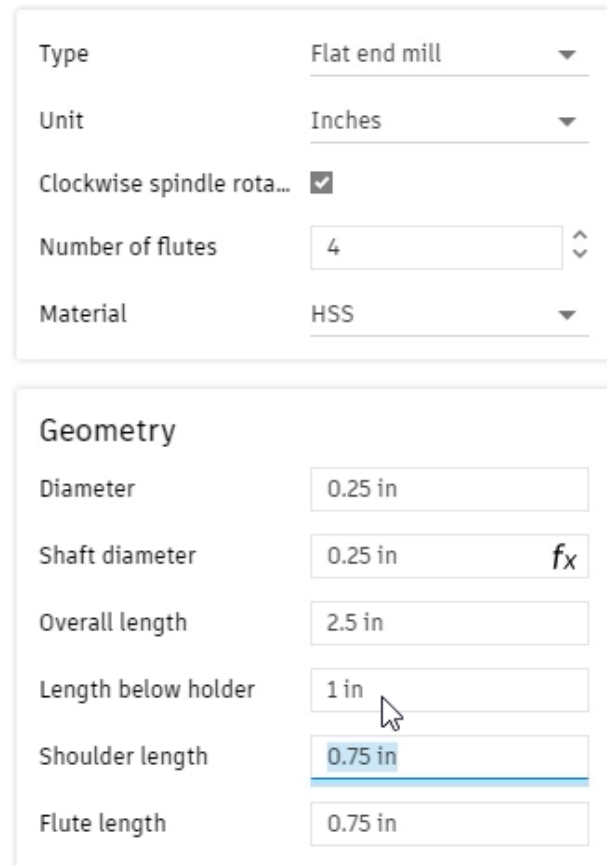


Figure 18. Edit the tool

- 19.** The tool's definition needs to precisely match the physical tool you will use to cut the part. Navigate to the Cutter tab and configure the tool.



The screenshot shows a configuration dialog box for a tool. It is divided into two sections: 'General' and 'Geometry'.

General Section:

- Type: Flat end mill (dropdown)
- Unit: Inches (dropdown)
- Clockwise spindle rota...: ☒
- Number of flutes: 4 (input field with up/down arrows)
- Material: HSS (dropdown)

Geometry Section:

- Diameter: 0.25 in (input field)
- Shaft diameter: 0.25 in (input field) with a 'fx' icon
- Overall length: 2.5 in (input field)
- Length below holder: 1 in (input field)
- Shoulder length: 0.75 in (input field, highlighted with a blue border and a mouse cursor)
- Flute length: 0.75 in (input field)

Figure 19. Configure the new tool

20. Continue to the dialog's Cutting data tab and notice all the tool presets in the dialog's left column. Choose the Aluminum - Roughing option. Inspect the various feeds and speeds to make sure they are appropriate for the machine you intend to use.

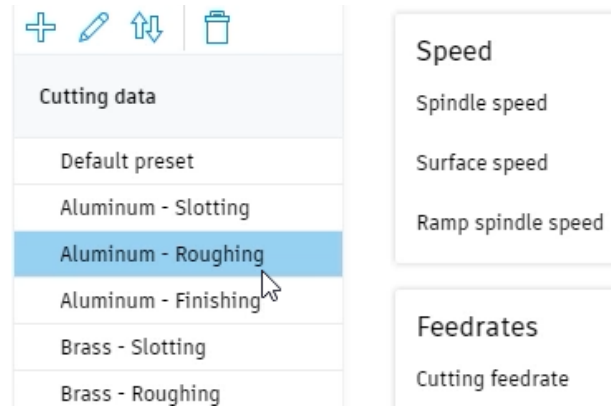


Figure 20. Choose the tool's cutting data

21. Continue to the dialog's Post processor tab and enter **10** into the Number box. This indicates that the tool will be in the tool changer's 10 slot. Notice that the Length offset and Diameter offset automatically update to match the Number value.

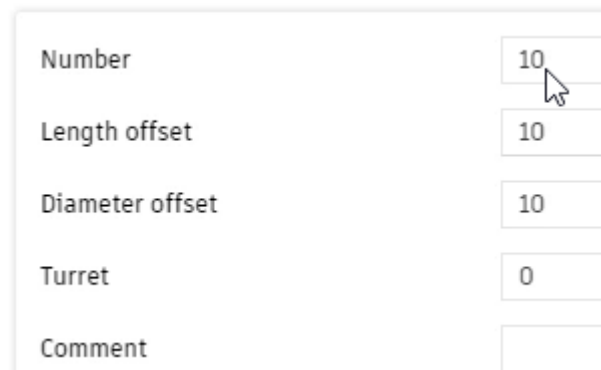


Figure 21. Change the tool's number

22. Accept the Tool Library dialog after you finish configuring the tool.

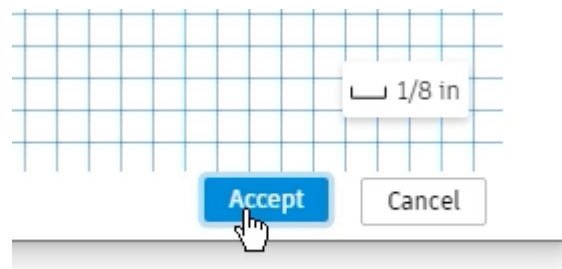


Figure 22. Accept the dialog

23. In addition to pasting tools into the tool library, you can also create tools from scratch. Click the plus icon to create a new tool.

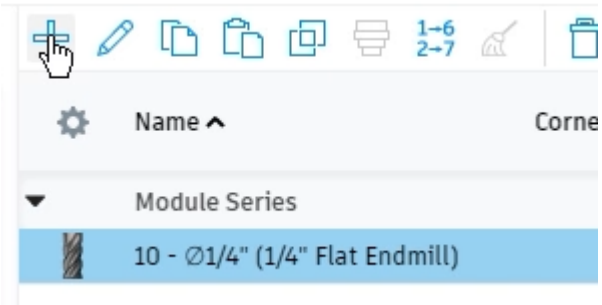


Figure 23. Create a new tool

24. Choose the Flat end mill option from the Milling section.

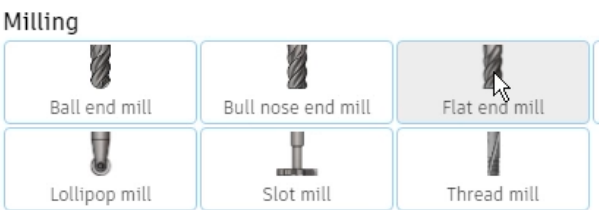


Figure 24. Choose the new tool's type

25. In the General tab, Describe the new tool in the Description box.

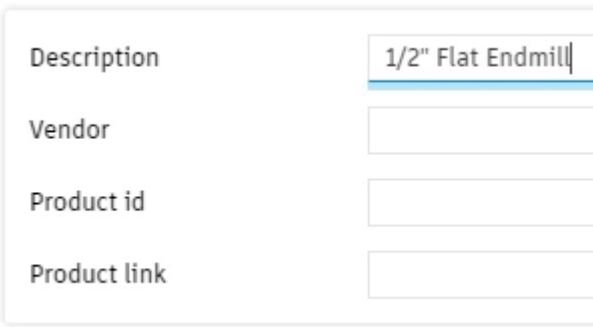
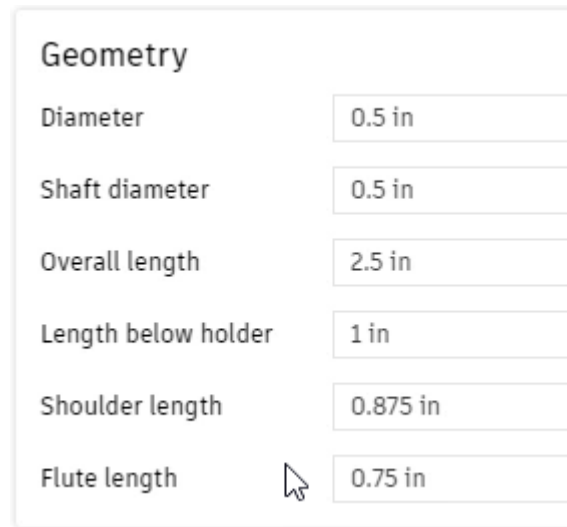
A screenshot of a form titled 'General' for describing a new tool. It contains four input fields: 'Description' (with the text '1/2" Flat Endmill' entered), 'Vendor', 'Product id', and 'Product link'. Each field has a corresponding label to its left.

Figure 25. Describe the new tool

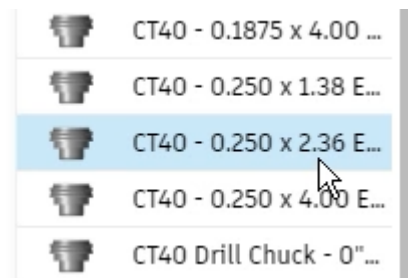
26. Continue to the Cutter tab and use the image on the right as a guide to define the new tool.



Geometry	
Diameter	0.5 in
Shaft diameter	0.5 in
Overall length	2.5 in
Length below holder	1 in
Shoulder length	0.875 in
Flute length	0.75 in

Figure 26. Define the new tool

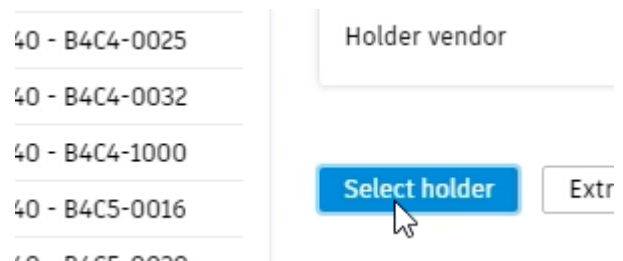
27. Navigate to the dialog's Holder tab and choose the C40 – 0.250 x 2.36 holder.



	CT40 - 0.1875 x 4.00 ...
	CT40 - 0.250 x 1.38 E...
	CT40 - 0.250 x 2.36 E...
	CT40 - 0.250 x 4.00 E...
	CT40 Drill Chuck - 0" ...

Figure 27. Choose the new tool's holder

28. Click Select holder.



40 - B4C4-0025	Holder vendor
40 - B4C4-0032	
40 - B4C4-1000	
40 - B4C5-0016	
40 - B4C5-0020	

Figure 28. Select the tool holder

29. Continue to the Cutting data tab and notice that the tool doesn't have any tool presets. You could create presets if you want.

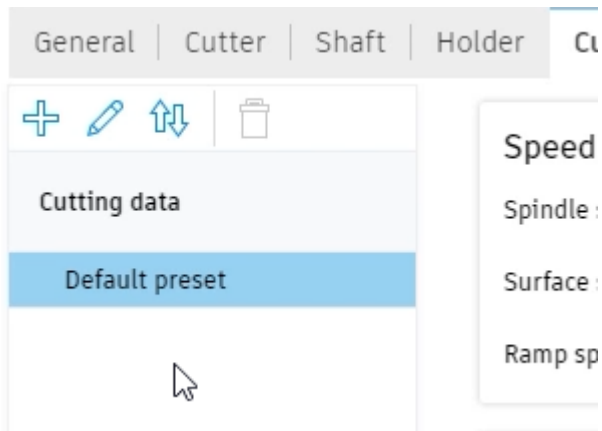


Figure 29. Notice that there aren't any tool presets

30. Continue to the Post processor tab and enter **5** into the Number box. This new tool will be in the tool changer's 5 slot. Accept the Tool Library dialog.

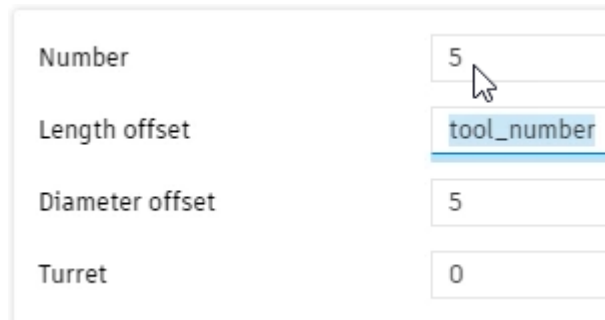


Figure 30. Change the tool's number

31. Inspect the Module Series tool library and notice that it has the two tools you added.

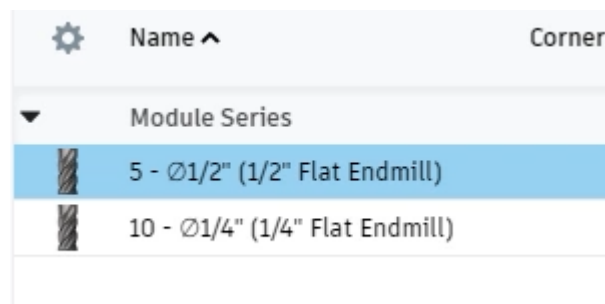


Figure 31. Inspect the tool library

32. Click each tool and notice the information you can learn in the dialog's Info tab.

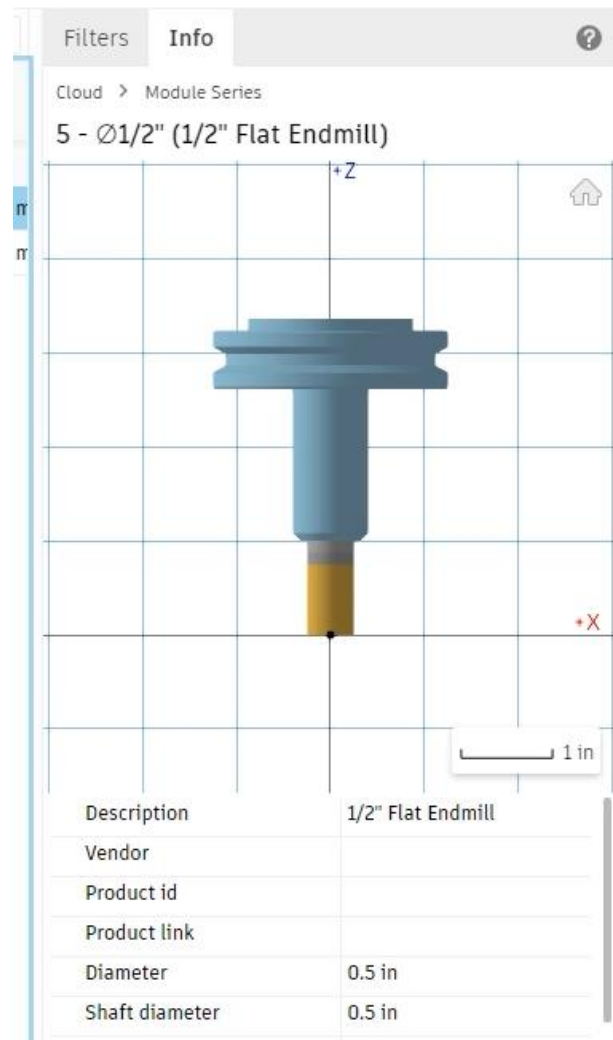


Figure 32. Explore each tool's information

33. Close the Tool Library dialog after you finish exploring the new tools. You don't need to save the design because the tools are saved to the Cloud.

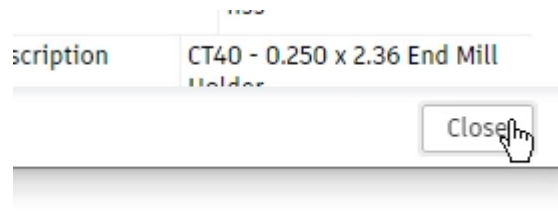


Figure 33. Close the dialog