

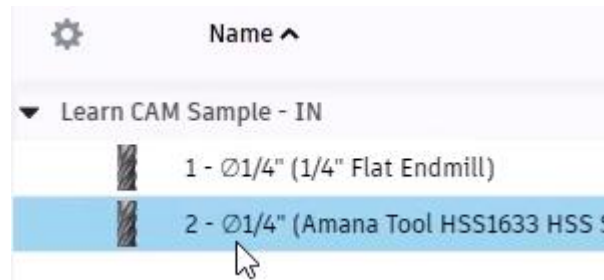
Step-by-step guide

Copy and paste tools

Populate a tool library by copying, pasting, and modifying existing tools.

Learning objectives:

- Use the tool library filter.
- Copy and paste a tool from the Sample Library.
- Edit a tool.



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.

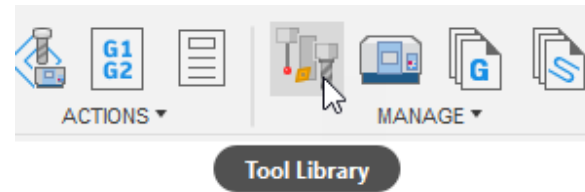


Figure 1. Open the Tool Library dialog

2. Click the Learn CAM Sample – IN library to open it. Notice this library does not have any tools.

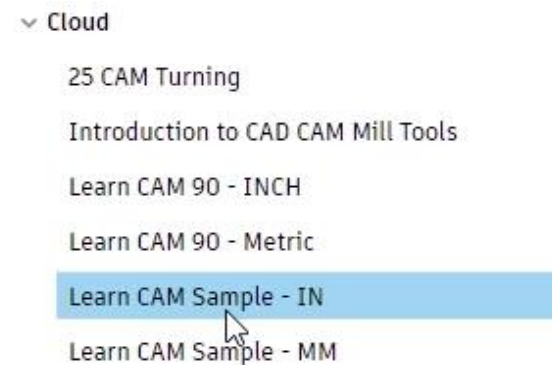


Figure 2. Open the tool library

3. A common practice for populating tool libraries is to copy and paste existing tools. These can come from either the Fusion Library or Vendor tool libraries. The Fusion Library's tools are preloaded with general feeds and speeds, cutting presets, and more.



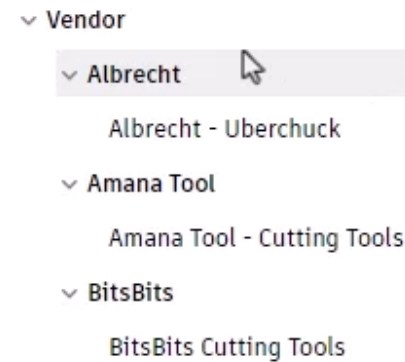
> Local

▼ Fusion Library

- Cutting Tools (Inch)
- Cutting Tools (Metric)
- Holders - Standard Taper Blanks

Figure 3. Explore the Fusion Library

4. Tools in the Vendor library are organized by manufacturer and are configured to precisely match existing tools.



▼ Vendor

- ▼ Albrecht
 - Albrecht - Uberchuck
- ▼ Amana Tool
 - Amana Tool - Cutting Tools
- ▼ BitsBits
 - BitsBits Cutting Tools

Figure 4. Explore the Vendor libraries

5. You can filter the visible tools by using the options in the dialog's Filters tab. For example, activate the Milling option in the Tool category section, then activate the Flat endmill option in the Type section.

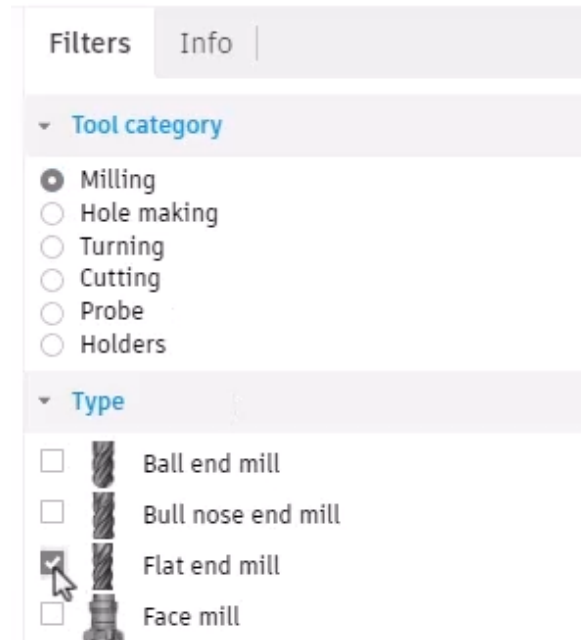


Figure 5. Filter the results

6. Open a tool library and notice that the visible tools match these filter criteria.

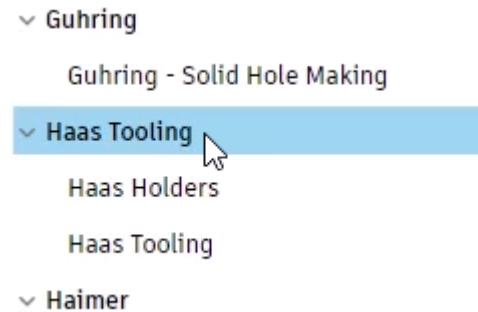


Figure 6. Open a tool library

7. Select one of the library's tools.

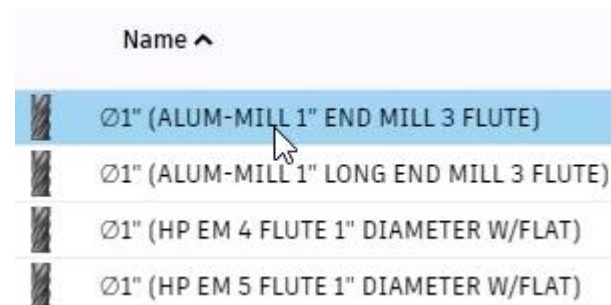


Figure 7. Select a tool

8. Notice that the Cutting data section has customized feeds and speeds for various materials.

Cutting data	Spindle speed
N21-22 Non-Ferrous Side Milli...	30558 rpm
N23-25 Non-Ferrous Side Mill...	4584 rpm
N26-28 Non-Ferrous Side Mill...	7066 rpm
N29-30 Non-Ferrous Side Mill...	12796 rpm

Figure 8. Inspect the Cutting data section

9. Activate the Fusion Library and notice the filters are still active.

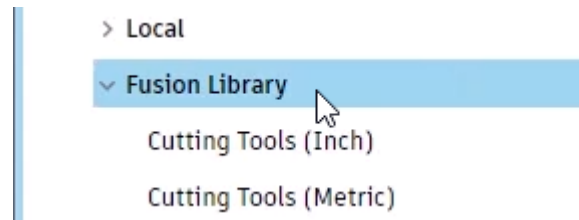


Figure 9. Navigate to the Fusion Library

- 10.** In the Filters tab, activate the Inches option in the Unit section. Choose the Range option from the Diameter section's drop-down menu, then enter a range of **6 mm** to **25 mm**. Alternately, you could enter the range using inch values by entering **0.25 in** to **1 in**.

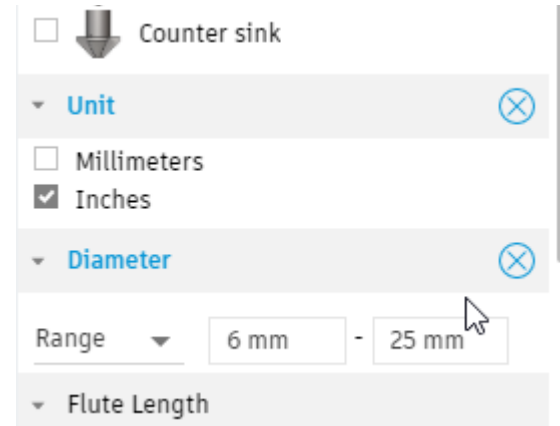


Figure 10. Continue to filter the tools

- 11.** To copy an existing tool, right-click it and choose Copy tool from the menu. Locate and copy the 1/4" Flat Endmill.

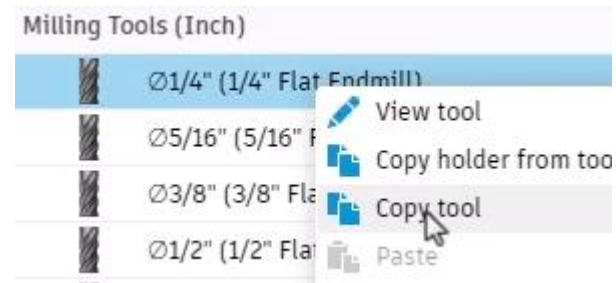


Figure 11. Copy the tool

12. Navigate to the Learn CAM Sample-IN tool library, right-click in an open section, then choose Paste tool from the menu.

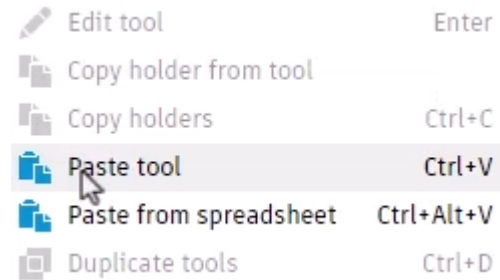


Figure 12. Paste the copied tool

13. Copying and pasting a tool does not clear the active filters. Clear all the active filters by clicking each section's X icon.

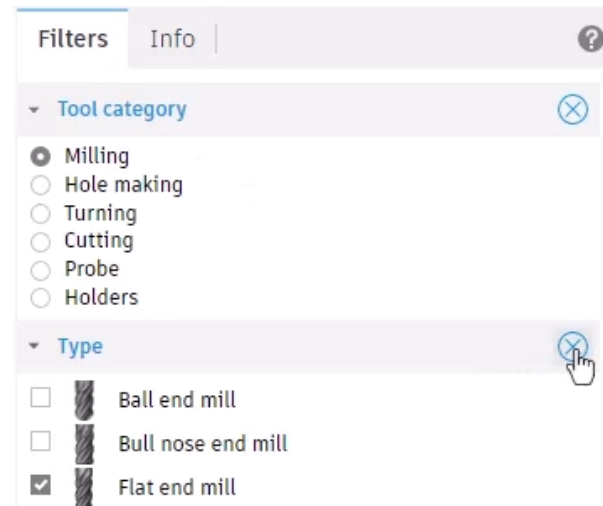


Figure 13. Clear the filters

- 14.** After clearing the active filters, all of the tool library's tools will be visible. In this case, there is only a single tool so no additional tools are visible.

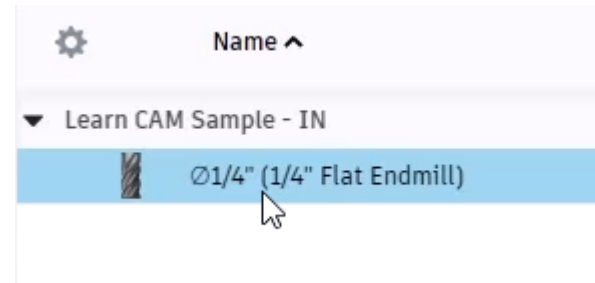


Figure 14. Inspect the tool library

- 15.** To edit the library's tool, right-click it and choose Edit tool from the menu.

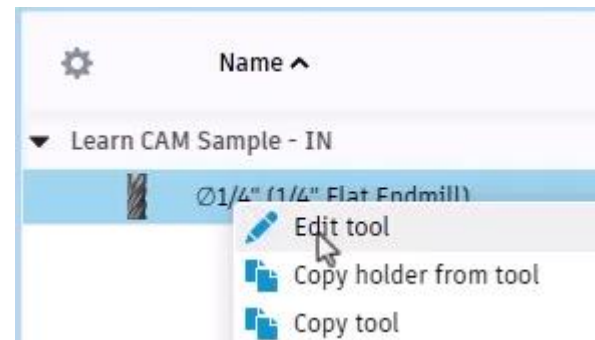
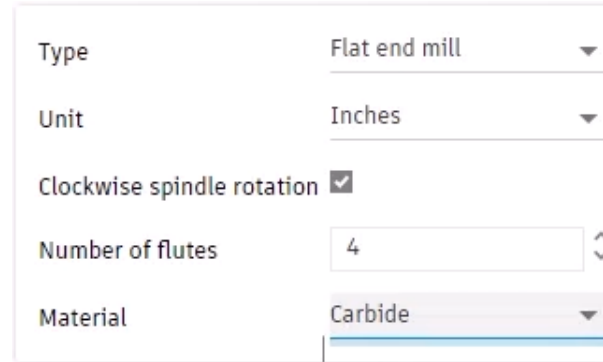


Figure 15. Edit the tool

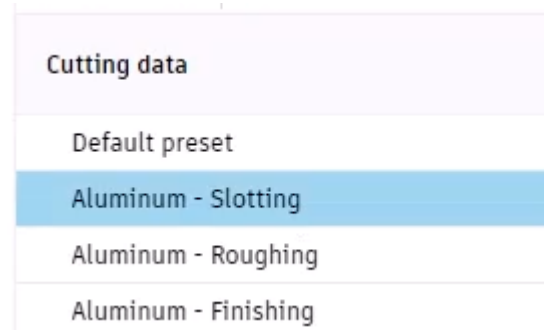
- 16.** Navigate to the dialog's Cutter tab and notice that you can customize the tool's parameters. For example, you could increase the number of flutes to **4** and change the tool's material to Carbide. It is always important to remember that every tool in the digital tool library needs to precisely match a physical tool in your tool chest; this will help create successful toolpaths.



Type	Flat end mill
Unit	Inches
Clockwise spindle rotation	<input checked="" type="checkbox"/>
Number of flutes	4
Material	Carbide

Figure 16. Customize the tool's parameters

- 17.** Navigate to the dialog's Cutting data tab and choose the Aluminum – Slotting preset.



Cutting data
Default preset
Aluminum - Slotting
Aluminum - Roughing
Aluminum - Finishing

Figure 17. Choose the cutting preset

18. The 12,000 RPM Spindle speed value might be well above a machine's capabilities. You can modify this value, but it is important to understand your specific machine's capabilities.

Speed

Spindle speed	11999.1161283942 rpm
Surface speed	785.34031 ft/min
Ramp spindle speed	11999 rpm

Figure 18. Note ways to customize the preset

19. Continue to the Post processor tab and enter **1** into the Number box. This identifies that the current tool is in the tool changer's number 1 slot. Click the dialog's Accept.

Number	1
Length offset	1
Diameter offset	1
Turret	0
Comment	

Figure 19. Change the tool's number

20. Navigate to the Vendor library.

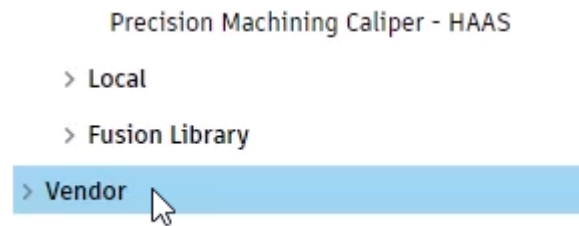


Figure 20. Navigate to the Vendor library

21. Filter the library's tools to show only the flat end mills measured in inches.

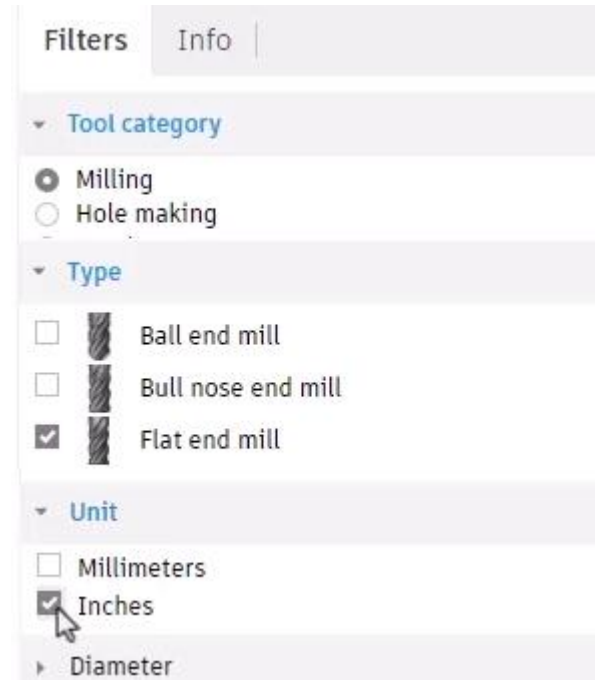


Figure 21. Filter the tools

22. Locate a vendor's 1/4" flat end mill, right-click it, then choose Copy tool from the menu.

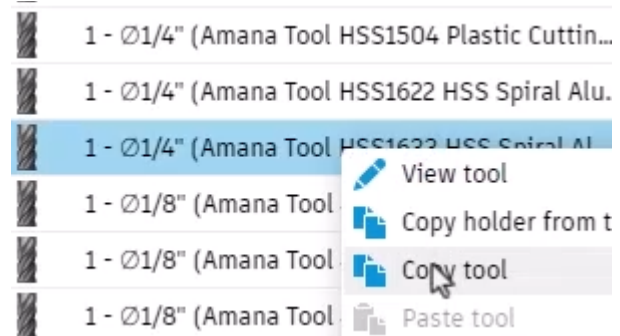


Figure 22. Copy a tool

23. Return to the Learn CAM Sample – IN library.

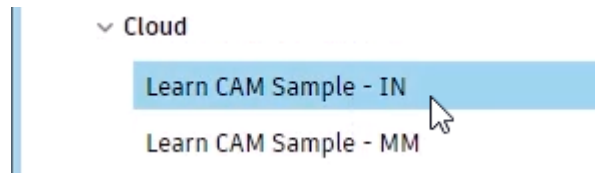


Figure 23. Navigate to the library

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

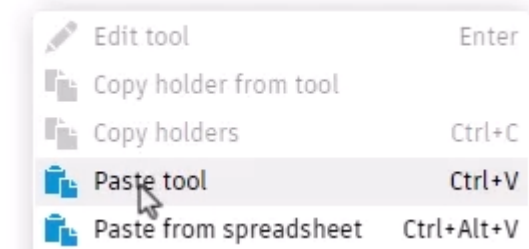


Figure 24. Paste the copied tool

25. The tool you copied is now pasted into the library. However, notice the tool only has a single cutting preset. The current preset might need to be modified or new presets might need to be created to match your specific machine's capabilities. For instance, your machine might have a max rpm lower than 18,000 rpm which means the current cutting preset might cause Fusion to highlight an error.

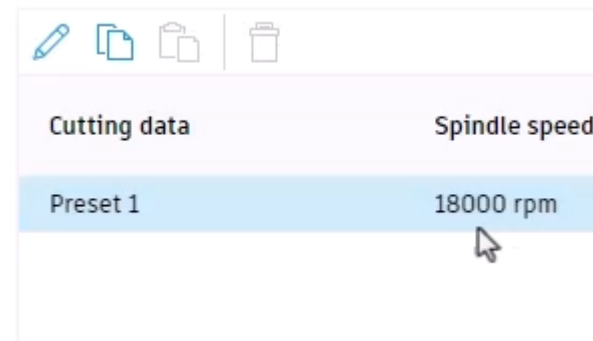


Figure 25. Note the cutting preset

26. Also note that the new tool shares a tool number with the other tool. The tool's number can be changed using the method you used in Step 19 or by choosing Renumber tool from the tool's right-click menu.

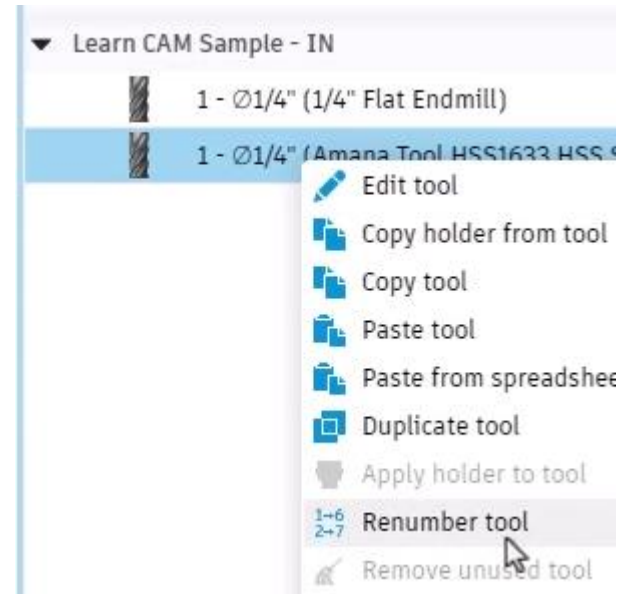


Figure 26. Edit the tool's number

27. Enter 2 into the Start from box, then click the dialog's Renumber.

Renumber tools

Start from	2
Increment by	1
Update diameter offset	<input checked="" type="checkbox"/>
Update length offset	<input checked="" type="checkbox"/>
Update compensation offset	<input checked="" type="checkbox"/>

Figure 27. Change the tool's number

28. The library now shows tools in the tool changer's first and second slots.

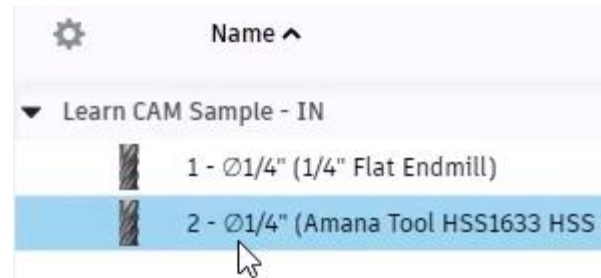


Figure 28. Notice the tools' numbers

29. Close the Tool library dialog by clicking the X in the top right corner. The library is already saved to the Cloud so you don't need to save the Untitled design.

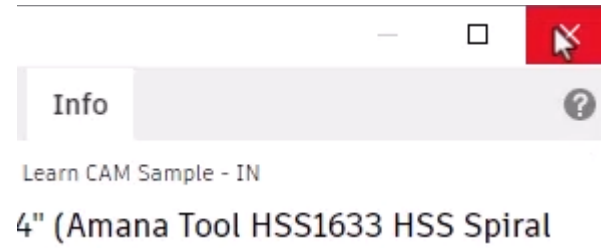


Figure 29. Close the dialog