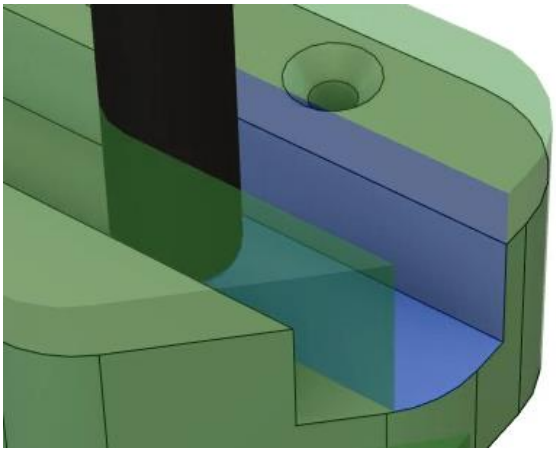
Lesson: Rough Mill an Open Pocket

In this lesson, you'll compare three different strategies for removing an open pocket's geometry.

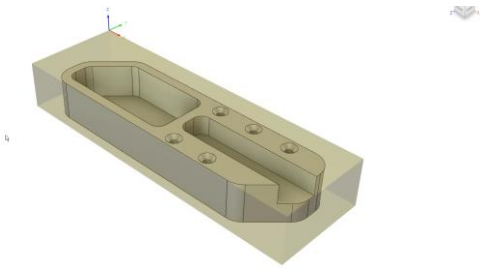


The completed exercise

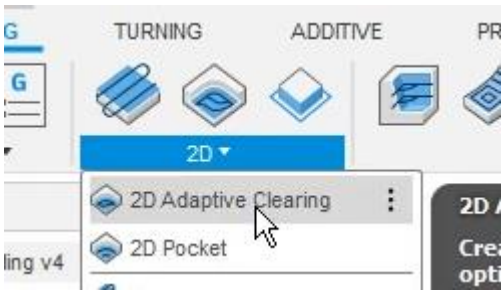
Learning Objectives

- Use a contour toolpath.
- Use an adaptive toolpath.

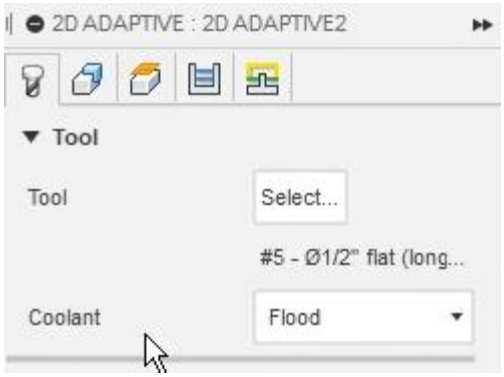
1. Continue with the *Introduction to Milling* file from the previous module.



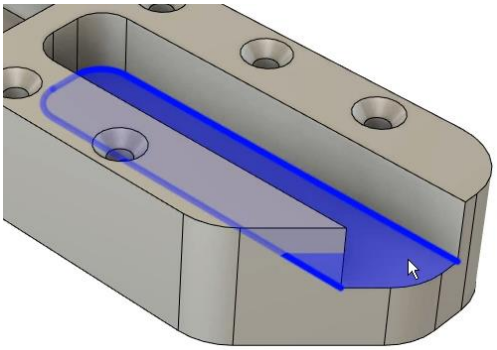
2. To create an operation to cut the open pocket's geometry click 2D> 2D Adaptive Clearing.



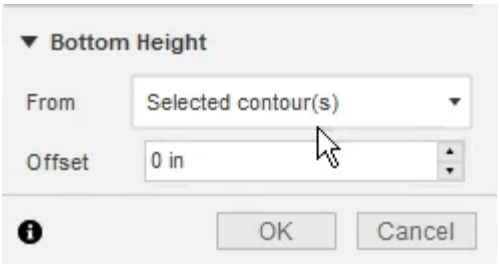
3. Make sure Tool 5 is selected for the operation.



4. Continue to the dialog's Geometry tab and choose the open pocket's floor shown in the image on the right.

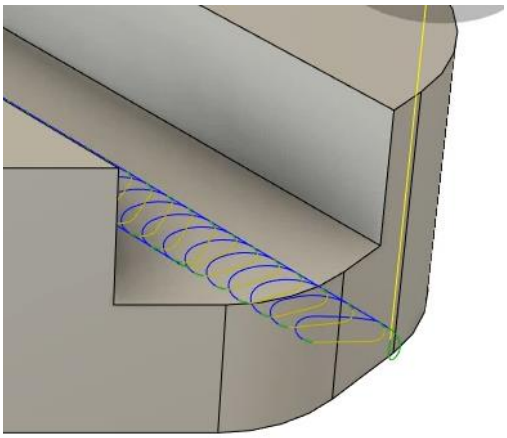


5. Continue to the Heights tab and make sure the Selected contour(s) option is selected in the Bottom Height section.

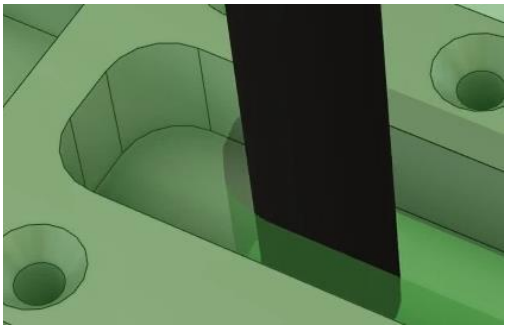


6. Continue to the Passes tab and enter **0** into the Axial Stock to Leave field so that no material remains on the pocket's floor. Before making any additional changes, generate the toolpath by clicking the dialog's OK.

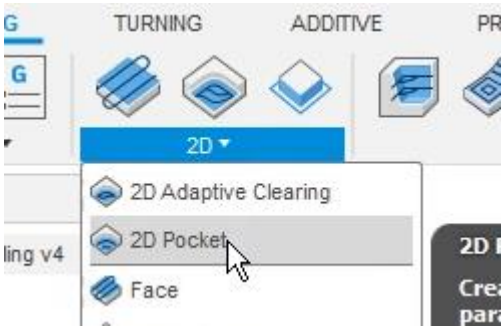
7. Inspect the new toolpath and note its strategy for clearing the pocket's material.



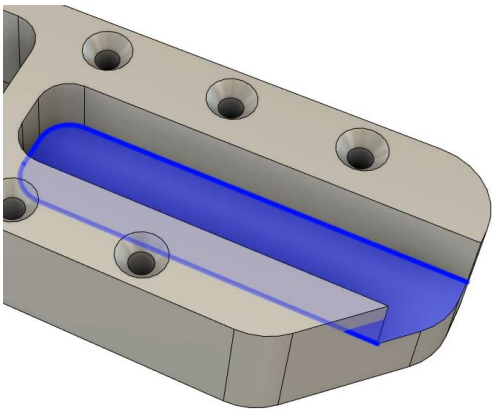
8. Select the new operation in the Browser and simulate it by clicking Actions> Simulate. Press play and watch the animation. Click close to end the simulation.



9. To explore an alternate method for clearing the open pocket's geometry, click 2D> 2D Pocket.

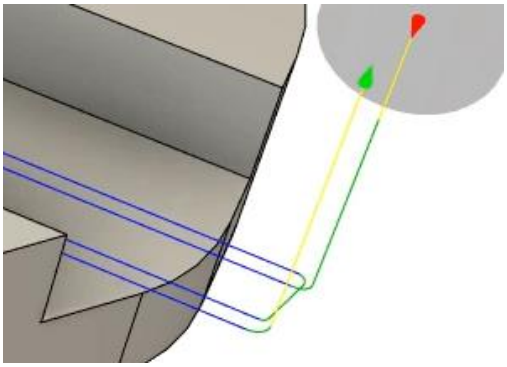


10. Continue to the Geometry tab and select the same geometry selected in Step 4 as the dialog's Pocket Selection.

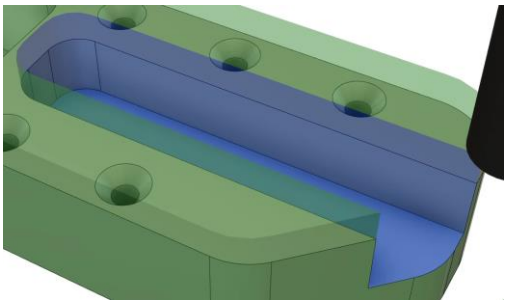


11. Continue to the Passes tab and activate the Finishing Passes option. Deactivate the Stock to Leave option, then click OK to generate the toolpath.

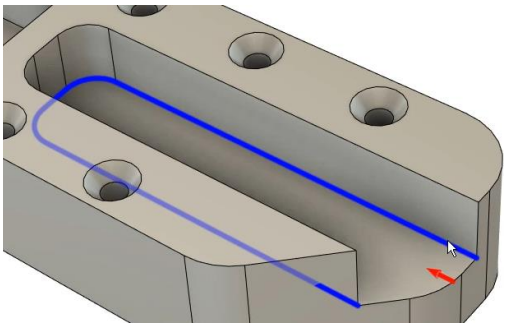
12. Compare this toolpath to the 2D Adaptive's toolpath and notice the differences.



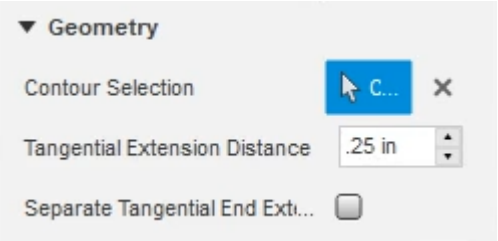
13. In the Browser, select the 2D Contour and 2D Pocket operations and simulate them. Because the tool's radius perfectly matches the pocket's radii, some chatter might occur in the corner geometry. The manufacturing process could be sped up by increasing the pocket's corner radius if the measurement is not critical. Click the dialog's Close to end the simulation.



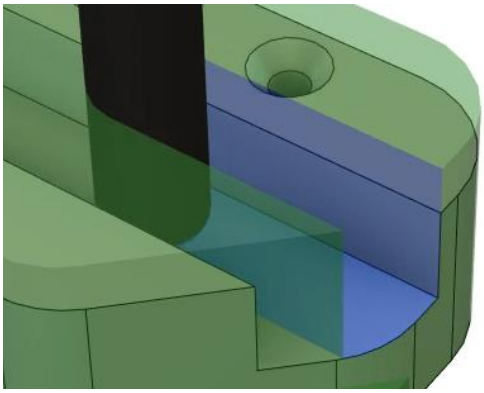
14. Click 2D> 2D Contour to explore a third way for cutting the open pocket's geometry. Choose to use the same tool, then select the geometry shown in the image on the right as the Geometry tab's Contour Selection.



15. Specify a Tangential Extension Distance of **0.25 in**, which is half of the tool's diameter. OK the dialog to generate the toolpath.



16. In the Browser, select both 2D Contour Operations and simulate them. Compare this operation to the previous two operations, then end the simulation. The Adaptive Clearing operation does a much better job of maintaining a consistent chip load as it cuts the geometry. This means the tool can use higher RPM and faster feedrates. A good strategy might use Adaptive Clearing operations to clear the bulk of the pockets' geometry, then finish the walls using a Contour operation.



17. In the Browser, delete the 2D Adaptive and 2D Pocket operations. To do this, select them and press Delete . Save the file and continue to the next module.