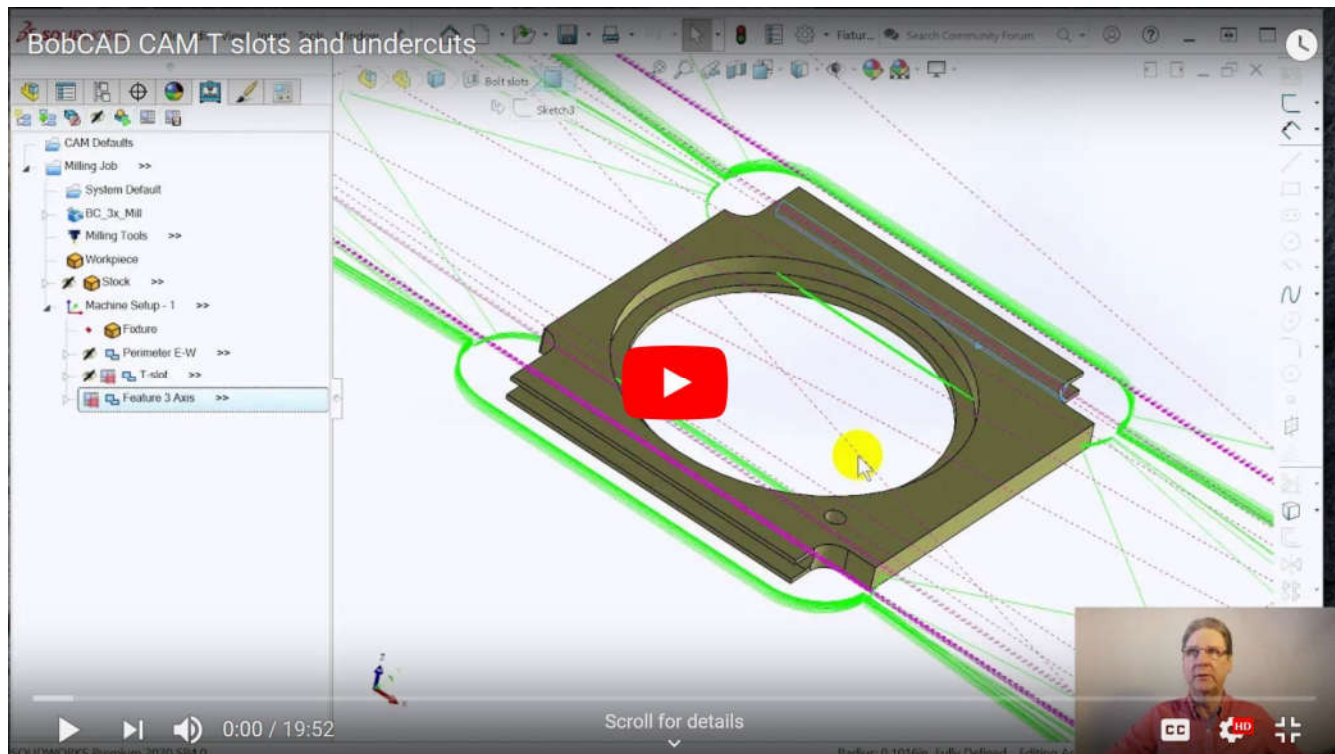




Rako Studios » Media » Suffering-with-software » BobCAD-CAM T-slots and undercuts

BobCAD-CAM T-slots and undercuts

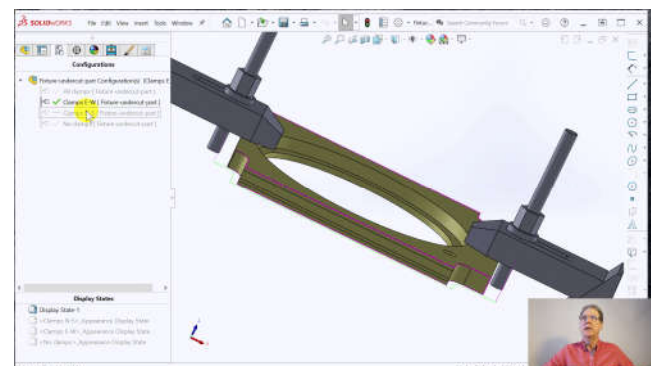
BobCAM did fine with a T-slot using a formed tool. I could not get an undercut 3D operation to work right, likely my error.



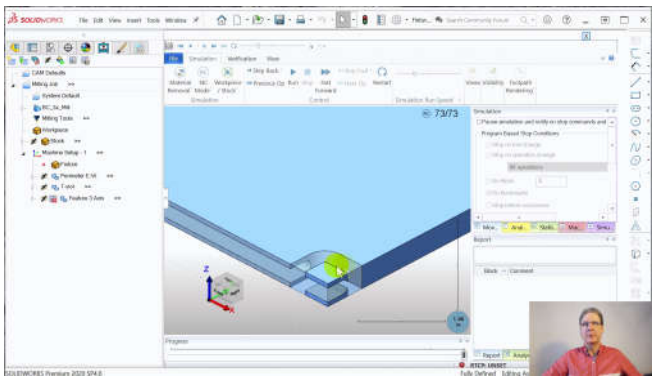
Start pack-and-go zip part file here.
Finished pack-and-go zip part file here.

Note the demo part file will only open with toolpaths in another demo version, you can't open it in a paid-for BobCAD CAM. Solidworks will open either file once you unpack though, if you just want to see the fixtures in the assembly.

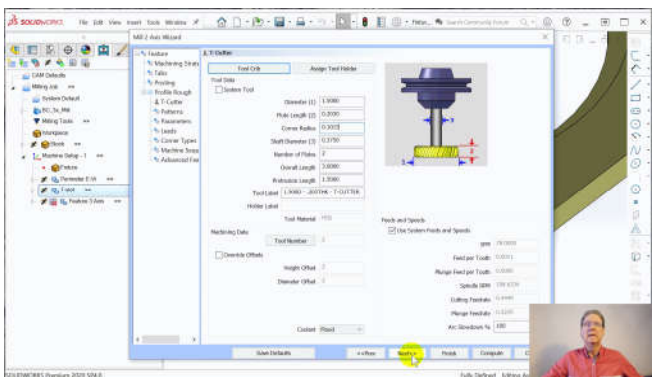
To look at doing T-slots and undercuts in BobCAM for SolidWorks I used the same assembly file I used for the fixturing episodes in BobCAD and SolidCAM. This assembly has four toe-clamps in it, and four different SolidWorks configurations, all clamps, no clamps, and one of each pair of clamps.



The part is a prototype transmission part for my redesigned Iron Sportster motorcycle case. It has slots for long bolts I use so there are no short bolts that can fall out and get between the transmission gears. These 12-32 screws use a slot that is 0.203" wide, with the radius for the screw at the base of the slot.

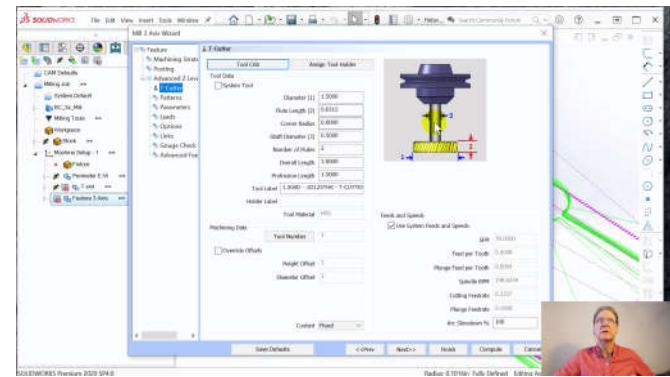


Getting the T-slot cut was a straightforward 2D profile operation. Problem was I had to define the tool to have a radius to cut the curve at the bottom of the slot.

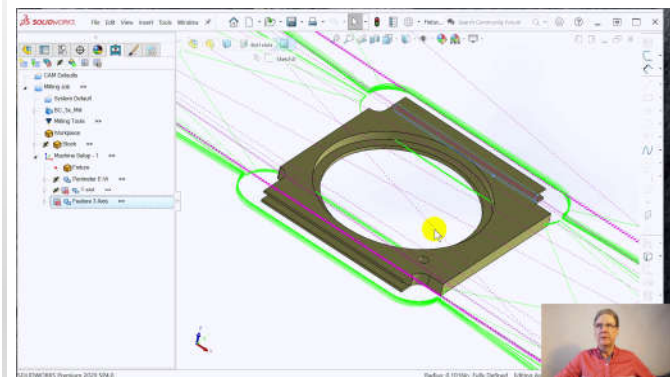


BobCAD came with predefined T-slot cutters, but only with square sides. I used the tool edit dialog to make the tool precisely the right depth, 0.203", and put a 0.1015" radius on the corners so it would cut the slot. This would mean I would need to have a form tool made for this slot.

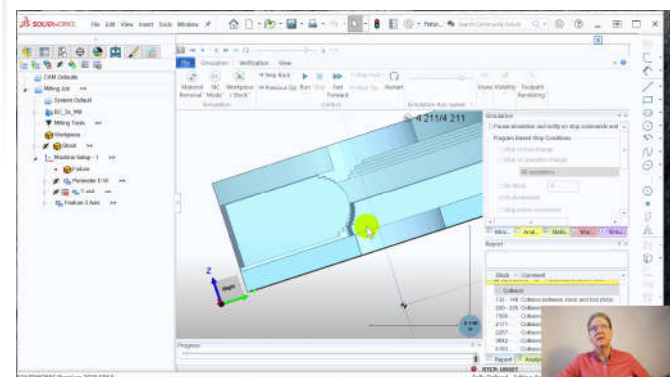
If I can order a 0.2" slot cutter with a full radius, I could probably do a profile with a 0.003" step-down and the part would be close enough. What would be a lot tougher is if I had a standard 0.03125 slot cutter with a square side, and wanted to run that along the curve 7 or 8 times. SolidCAM let me do this by selecting 8 line geometries "point-to-point" along the surface and then doing a multi-level 2D profile where the tool took eight passes.



To do this, I switched to a 0.03125 tool and did a 3D advanced Z-level operation. The advanced operations let you use a T-slot tool.



The program did run the narrow cutter down the curved surface of slot, but then it also ran the cutter on the backside of the slot, but only the lower half. It also did gouges on the corner.



The simulations showed how the program sent the tool around behind the surface but only on the lower half. Nothing I tried could eliminate this back-cut on the surface.