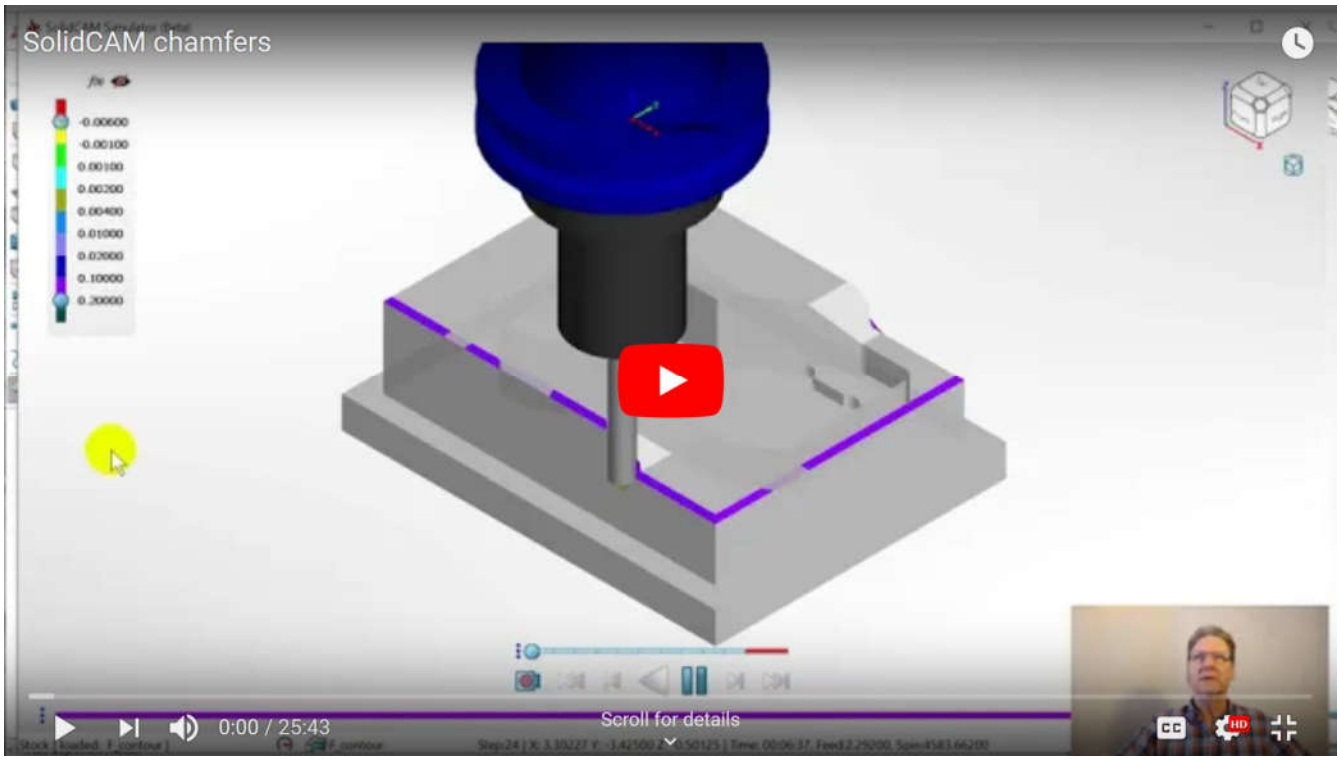
RAKO STUDIOS

SolidCAM chamfers

SolidCAM will do automatic chamfers, 2D chamfers on multiple levels, as well as 3D chamfers in curves or slopes.

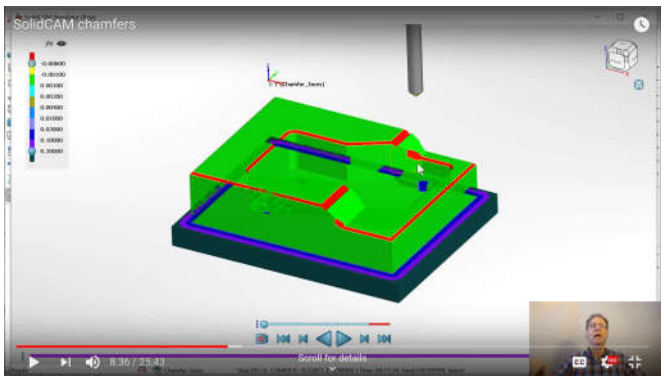


Part at start file here.
Part at finish file here.

My love-hate relationship with SolidCAM continues, as I explore how to do chamfers. I love the power of this program, it does things MasterCAM could not. I love the company, they don't charge back-maintenance if you lapse and want to start up again. SolidCAM is really big in Germany and Japan, accounting for the programs expertise and sophistication. I love that you deal with a SolidCAM employee, not some value-added re-seller that doesn't care about one-man shops like mine. What I hate is how convoluted the user interface is. Dialog boxes have many icons you have to hover over to see what they do. Worse, yet, it seems every dialog box is designed by a different programmer. It is never consistent how you exit out of a dialog. In the 2D chamfer, you invoke a chamfer by doing a drop-down at the lower left of the "Profile" dialog. In the 3D chamfer, it is a little check-box in the lower right of the "Contour 3D" dialog. Both will make a new tab appear, and you have to notice that to set up the chamfer.

But here's the thing. All these inconveniences can be overcome, maybe with a note pad to remind me if I have not used the program in a month. The other programs I am looking at all have some other limitations in what they can do, and that does not get overcome by experience or training.

One thing to really love about SolidCAM is the extra simulator. It has a simple simulator similar to BobCAD CAM's and MasterCAM's simulator that they both buy from ModuleWorks. The SolidCAM beta simulator is more like the simulator in SolidWorks CAM by CAMWorks, or in VisualMill by VisualCAM. Those simulators have a "compare" function that will color-code the gouges and extra material as in the screenshot below. I don't know about other CAM program's simulators since I am only evaluating CAM programs that work inside my SolidWorks.



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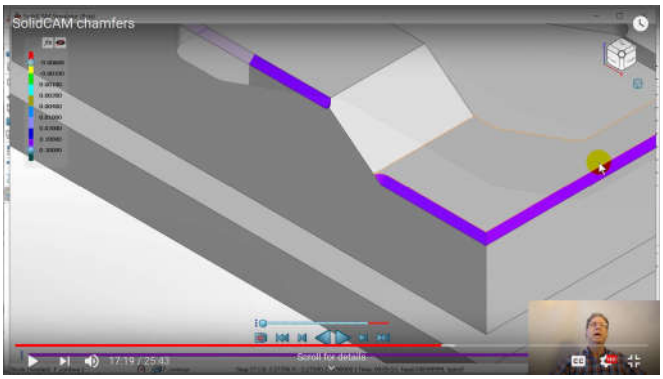
Above you see the simulation of the automatic chamfer recognition operation. Note that it has decided to do both the outside of the part and the inside of the pocket. Also note it can only do the flat chamfers, it can't handle the slopes. All the chamfers appear as red gouges since the chamfers were not in the part model, this is using CAM to add chamfers.

Doing a lighter chamfer would eliminate the two big gouges on the top, since the tool would not be plunging so deeply. A bigger problem is the gouges on the base of the slopes. Since chamfer recognition is automatic, there is no way to edit that geometry it has decided to use. All you can do is chamfer the whole solid, or select what faces you want to chamfer. A help guy told me to think of this automatic operation as something to do deburring of the whole part. It might work on their demo part, but not mine.



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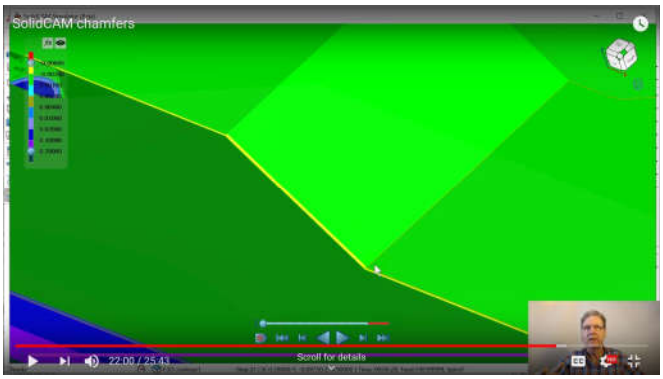
Using a manual "Profile" operation to do the chamfer lets you pull the geometry back from the slopes to prevent the gouges. I see that the chamfer on top is ending a bit soon, so I also should have extended the geometry on that edge. You could also use lead-in and lead-out to to do this, but then you could not do both chamfers in one operation. Here I did no lead-in or lead-out to eliminate the gouges on the slopes.



You can do a 3D chamfer as a subset of the "Contour 3D" operation. Because of the geometry of a slanted edge meeting a cone, the chamfer will be a bit wider on the slopes. This is minimized if you do a small chamfer (0.005") with the cutting diameter of 0.005", right at the tip of the tool.

If you want a closer size chamfer on the slopes, you could do a 2D chamfer of the two planes and then do the slopes separately, where you can pull back the depth of cut so the resulting chamfer more closely matches the 2D ones.