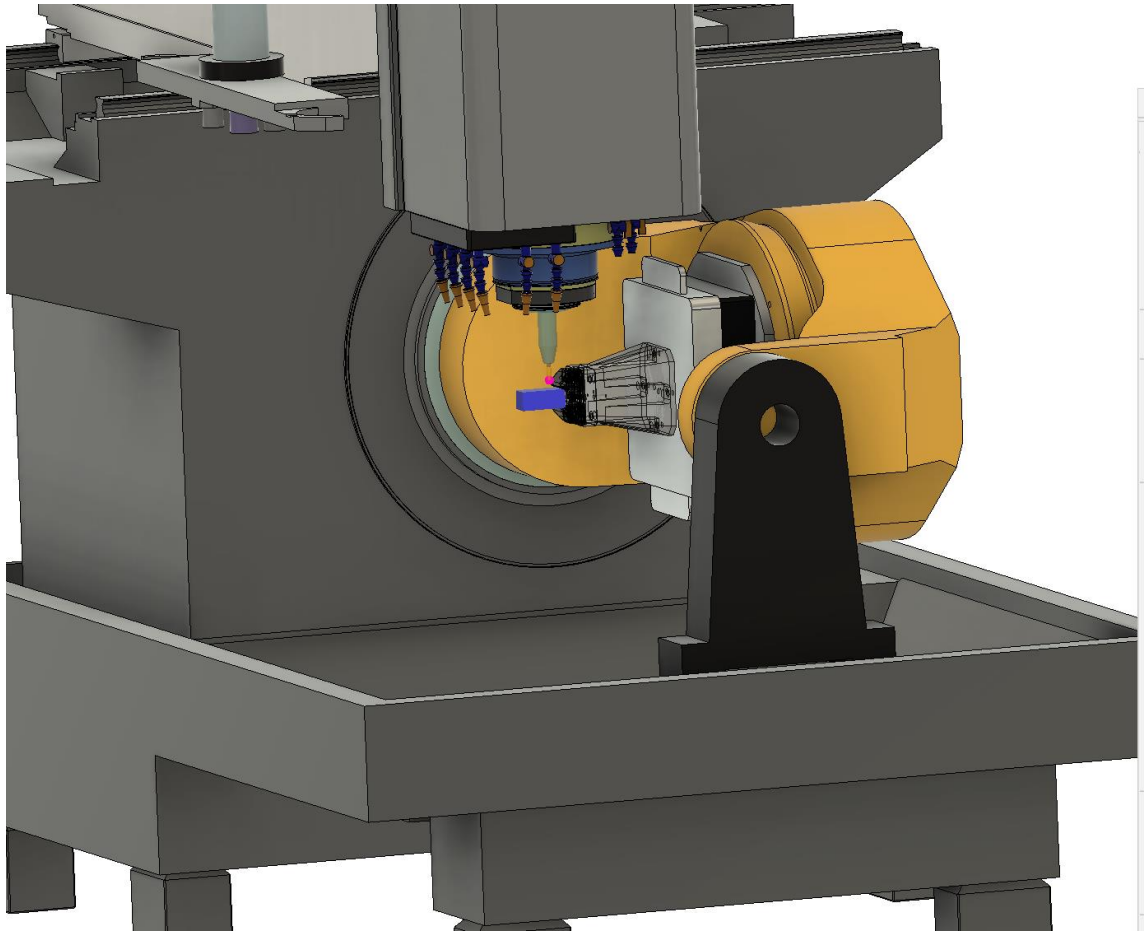
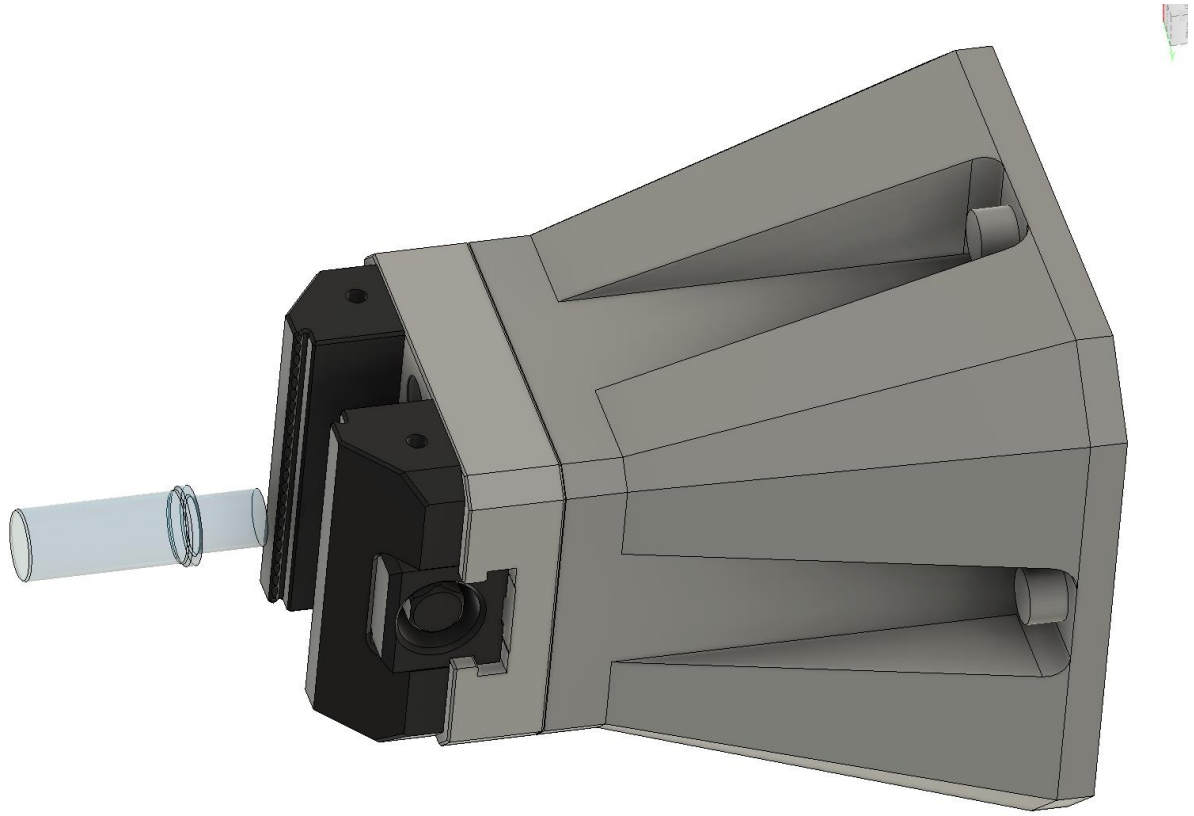
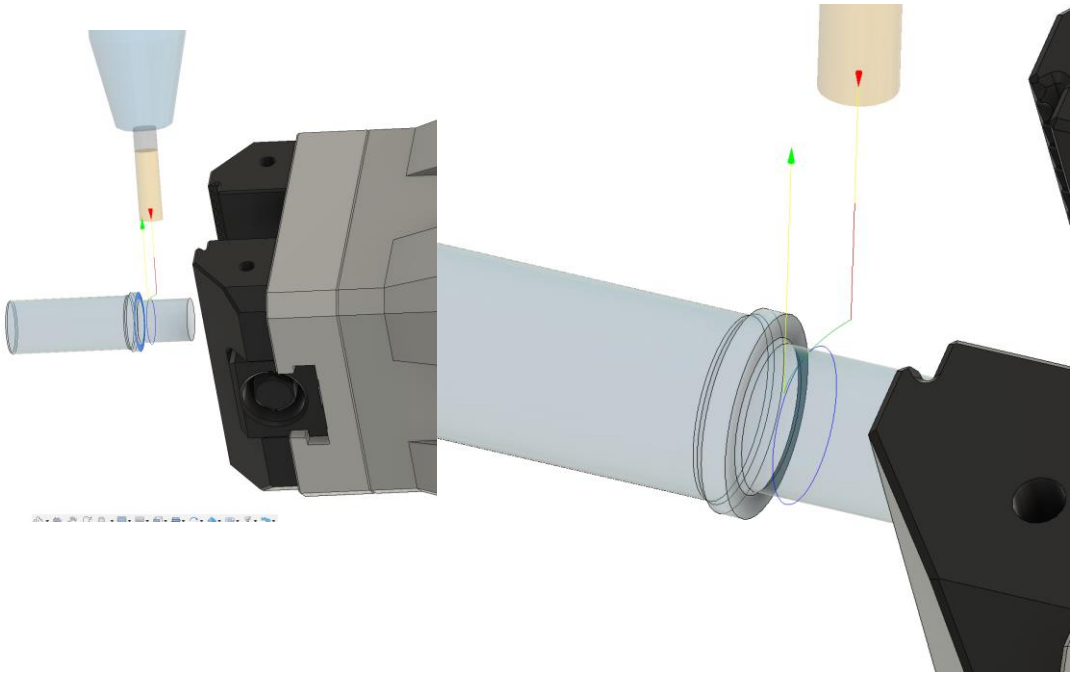
General Machine setup

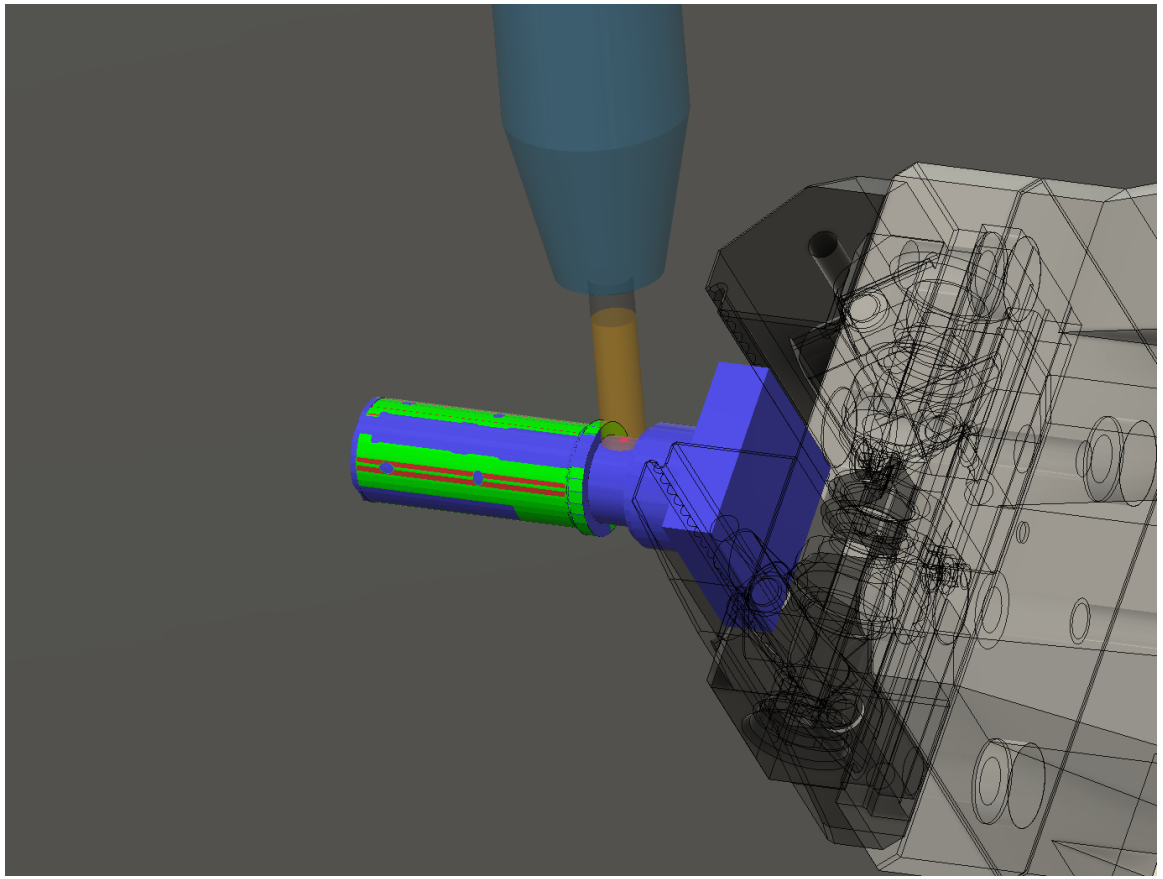


Part in question. There are more features to be added – pockets, tapped holes etc. but I need to start with the finished profile.



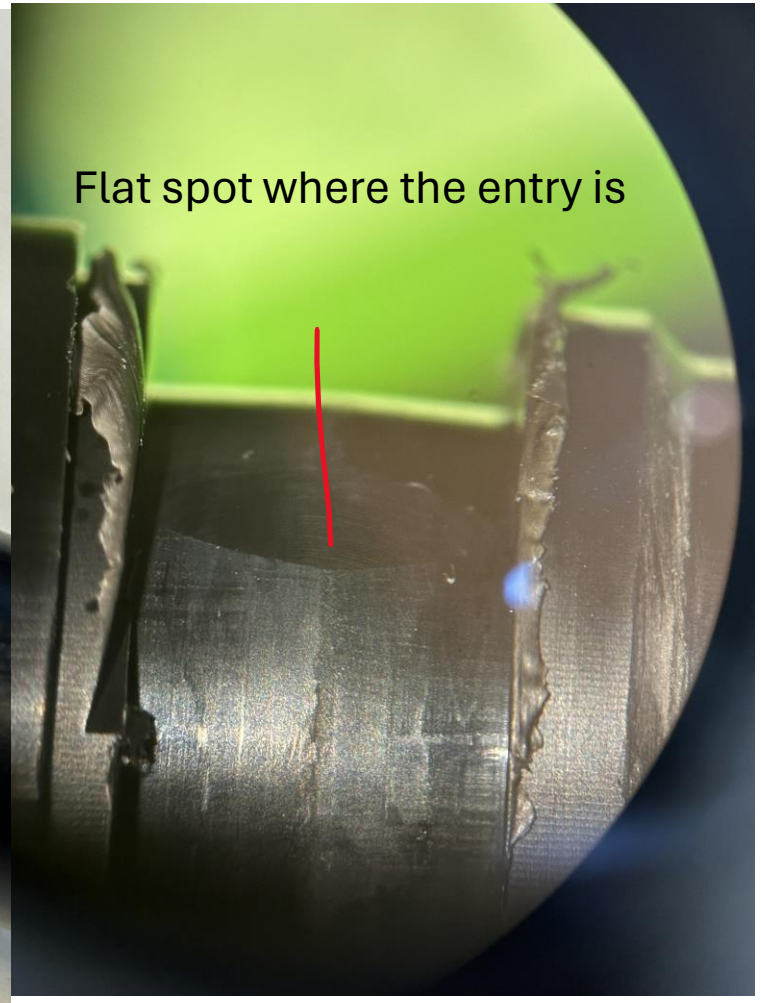
Rotary Parallel – toolpath and simulation looks great. C axis spins as the tool is kept in the center of rotation

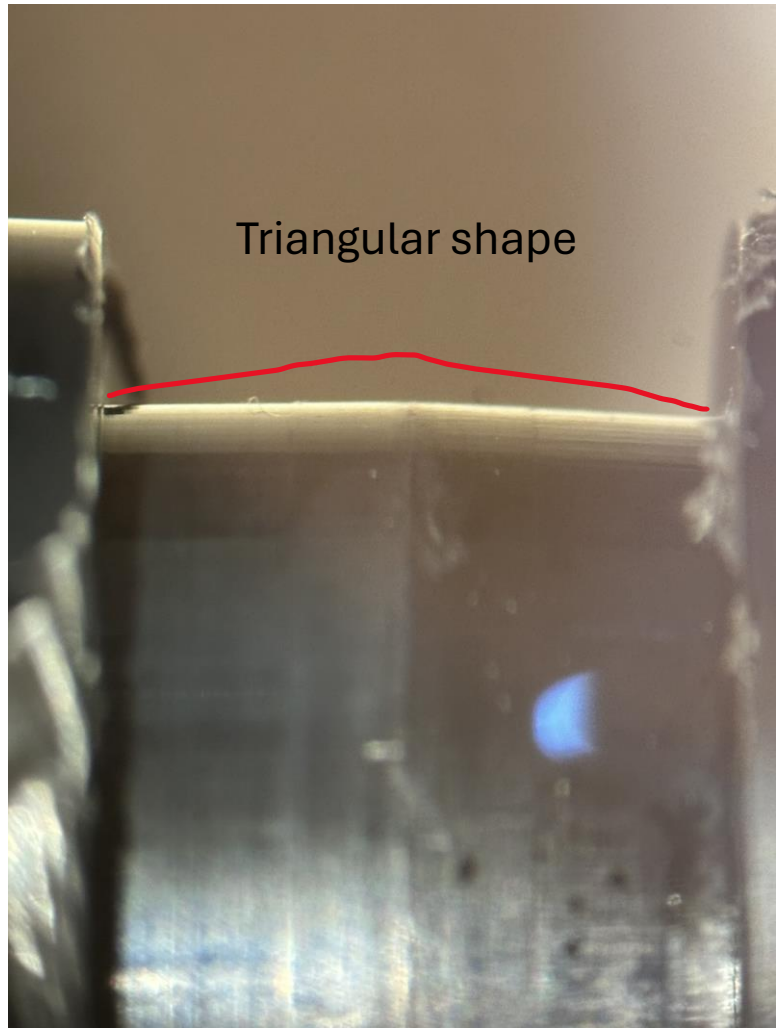




Machining result:

- There is a flat spot where the tool enters, and then the remainder of the surface that wraps around the part has a triangular profile with a high spot in the center of the tool.





Some possible thing I've thought of:

- Endmill: The endmill used does have center cutting capability (1 flute goes fully to the center), and it is cutting at 20 in/min in plastic which I would think would be enough to cut even at the low SFM tool center. Maybe not though?
- Heidenhain Cycle 32 tolerance. This is the equivalent of G187 P1/P2/P3 on a Haas, so it sets a deviation zone. In this case these were used:
- 47 CYCL DEF 32.1 T+0.0001
- 48 CYCL DEF 32.2 HSC-MODE:0 TA0.001

The TA value I believe is particularly important as it is the allowable rotary deviation from the tool center point in degrees.

- Machine Rotary position is off – unlikely, the machine is regularly kinematics checked, and a calibration cube is accurate to under 2 tenths with B at 90 degrees.