Pneumatics holder

I created this part to be able to mount the pneumatics reservoir in an easier way. Right now, the only easy way of mounting them is by zip tying them to a piece of metal. This part will be able to clip on to the tank and be screwed on to the robot by 2 screws. It would be best for teams to use two of them for each tank, one on each end.

It would be used to hold the reservoir on the robot instead of zip ties, for when a team wants to use pneumatics. They could bolt the clip on to their metal and snap the reservoir right on. I have used pneumatics on my robot for the past couple of years and have always wanted an easier way of mounting, but there is no VEX part made yet.

I used Autodesk fusion 360 to sketch the shape of the part, then I extruded the sketch to make the 3D version of the part. I made a perpendicular piece on the end to keep the reservoir from sliding out. I counter-bored the screw holes so that the screws are flush with the surface, so they don’t get in the way of the reservoir. Then I filleted all the edges so that I could 3-D print the part. Then I made a new file and added draft to it, to show what it would look like if it was cast in a mold. I put a 2-degree draft on all the faces except the top and bottom. You need draft to make it with a mold so that you can pull it out of the mold. I then brought in an air tank to make sure that it would fit, and I had to make the part slightly wider to allow for the draft.

I learned how to counter-bore holes in CAD, and how to make holes easier using the hole command. Also, I learned that to 3-D print a part, all the edges need to be filleted for it to turn out nice, and to give corners more strength, and I would like to learn more about CAD to get better at it.

I will use a CAD software in the future to design my robot before we start building. This season I did use a CAD software to model my robot before we started building. It helps us by giving us a picture of the robot, so we can see how everything needs to fit together, and if it will work before we start building and cutting parts up. Because we did that we have been doing the best of all the years we have been doing vex. Learning a 3-D design software will not help in my long-term career path, but I want to learn it to because it is fun for me and to design my robot with it.