# Blade Guard Design

Refer to Solidworks Drawings folder for the part drawing of the Blade Guard. This drawing shows dimensions necessary for manufacturing these blade guards.

**Overall Design:**

The current blade guards are made from two carbon rods that glue together in a T-configuration using fiberglass and epoxy. Two metal splints slide over the rods to reinforce the place where the screw goes through, securing the rods to the arm of the quad.

**Other Designs Considered:**

* Carbon plates with standoffs (similar to the x8 legs).
  + too expensive, not as light
* Full foam casing
  + Not as light or strong

**Manufacturing Process:**

CARBON T-RODS:

1. Cut rods to length using dremel. (easy if you spin the rod in a lathe while you cut it)
2. Using a different dremel bit, carve out the end of the long rod so it will mate well with the other rod.
3. super glue the two rods together to hold them in place during the epoxy process. (medium CA works well)
4. Cut thin fiberglass strips (about 1” by 5” works well) and wrap over the T-joint.
5. Tape the fiberglass down to the rod so it doesn’t unravel. (Try to cover as little fiberglass as possible because the epoxy doesn’t wick under the tape very far.)
6. Use 30 minute epoxy and glue the fiberglass into place. (set up all the rods before mixing epoxy then glue all at once)
7. Let sit on wax paper or PTE plastic to cure.
8. Drill holes in rods. (use manual mill to get precise placement.)

METAL SPLINT:

1. Cut tube to length and file edges.
2. Drill Holes in tube (Manual mill)
3. File all edges (Using a dremel with the skinny metal bit was the fastest way to file the ID of the tube).

FOAM BLOCK:

1. Use the CNC foam cutter and run Blade\_Guard.nc. Refer to that file for more specific instructions on this step.