

Appendix I: Instructions for Construction

Materials

- 240lb, 2mm Paracord (or some other strong cord with 2mm thickness)
- Cylindrical steel stock of minimum dimensions:
 - Diameter: 0.55 in
 - Length: 1.125 in
- 1 Neodymium magnet of dimensions:
 - Diameter: 12 mm (0.472 in)
 - Thickness: 3 mm (0.118 in)
- 1 zip tie
- 1 10mm stainless steel slider bead
- 1 package of Double Bubble General Use epoxy (or any other general epoxy)
- Manufacturing Tools:
 - Drill set
 - 3D printer
 - Box Cutter or Exacto Knife
 - Lathe

Procedure

Prepping the Materials:

1. Using an Exacto knife, cut a 26-30 inch strand of paracord (place cord under tension for the cleanest cut).
2. If the steel stock is not of the correct dimensions, use a lathe, bandsaw, or any other tools necessary to bring it to the correct dimensions.
3. Using the lathe, drill a vertical hole through the center of the steel stock with a 35 drill bit (0.1100 inch).
4. 3D print the SolidWorks file provided for the casing.

- | ZONE | REV. | DESCRIPTION |
|------|------|-----------------|
| | A | INITIAL RELEASE |
-
- 1.40
- R.03
- R.05
- Ø.12
- Ø.55
- Ø.65
- YOUR LOGO
- UNLESS OTHERWISE SPECIFIED -
- DIMENSIONS ARE IN INCHES
- TOLERANCES
- FRACTIONAL DECIMAL ANGULAR 3/16"
- FRACTIONAL DECIMAL 2.00
- FRACTIONAL DECIMAL 2.000
- WTC-1000

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Construction:

5. Insert one end of the string into the hole in the steel stock and allow about 0.125 inch of string to stick out the other end of the stock.
6. Open the epoxy package, mix the two components thoroughly, and apply generously to the end of the metal stock with the small amount of string sticking out (see Figure 2).



Figure 19: Steel stock with epoxy applied

7. Insert the other end of the cord into the small hole of the 3D printed casing, with a small length of cord coming out the other side (similar to the metal stock).

8. Apply a generous amount of epoxy to the inside of the casing so that the end of the cord is covered. Then insert the magnet into the casing so that it is in the layer of epoxy (Figure 3). Apply pressure for 2-3 minutes to ensure the magnet stays in place.



Figure 20: Magnet inside the casing

9. Pinch 4-5 inches of the cord in the middle of the strand so that there is a loop of extra string. Insert the loop through the stainless steel bead.
10. Attach a ziptie to the furthest point of the loop, tighten it as much as possible, and cut off the excess plastic. File down the rest of the excess plastic to remove sharp edges (Figure 4).



Figure 21: Tightening mechanism with bead and zip tie

11. Let the epoxy cure for 1-3 days before using the BraceForce bracelet