



Thru Hull Connector

Materials:

1/2-14 NPT Solid Brass Plug

Available Online - \$3.30 on Ebay from seller "pressurewashingsupplycenter" Item #: 281153602212

2-56 Stainless Steel Thread Rod

McMaster Carr - Item # 98847A003

1/8 Inch CPVC Sheeting

McMaster Carr - Item # 87025K112

Plastidip Synthetic Rubber Coating, Aerosol Rubberizing Spray

Available at Home Depot or Lowes in paint department spray paint section.

Epoxy

Any Epoxy will work, however quality epoxy like West Systems is the best choice.

DAP Auto/Marine Sealant 100% RTV Silicone - 2.8 fl. oz. - Clear SKU: 7079800694

Available at Home Depot or Lowes in paint department. Use only 100% Silicone sealant if another brand utilized.

Aluminum Plate,

Any Aluminum plate with flat sides that is large enough to tap with 1/2-14 NPT will work.

If Using Ring Crimp Connectors

2-56 Stainless Hex Nuts

McMaster Carr - Item # 90480A003

Ring Electrical Connectors

McMaster Carr - Item # 7113K23 - Standard Ring Terminal, Vinyl Insulated, 16-14 Awg, #6 Screw/stud Size

Tools

Drill Press or Milling Machine

3/32 Drill Bit

5/8 Drill Bit

3/4 Drill Bit

1/2-14 NPT Tap

3/4 Hole Saw - Milwaukee Model # 49-56-9605

(Purchased at Home Depot, any brand with ID of 5/8 or .625 inch will work to make discs.)

Bolt Cutters

Grinder / Dremel

Construction

Step 1: Drill a 3/4 Inch hole in the aluminum plate and tap it for the plug. This will allow you to hold the plug securely in your drill press or milling machine vise while you drill into it.



Step 2: Drill seven pin holes completely thru the plug with the 3/32 drill bit, be sure the center hole is aligned properly with the center of the plug. A CNC Mill will make this much easier but it can be done by hand with the proper setup. If you are using a drill press or manual mill use a rotary indicator to center using the hole in the aluminum plate. (Pattern sent in .pdf for manual drilling and .dxf format for CNC).

Step 3: Using the 5/8 inch drill bit, align on the center hole and drill into the plug until approximately 1/8 of an inch sides are achieved. The goal is to create a well hole which the plastic disc will recess into so it can sit flush.



Step 4: Cut two discs of CPVC using the hole saw without the middle drill bit installed, use medium speed and clamp the plastic sheet to a flat piece of wood on the table of your mill or drill press.

Step 5: Remove the disc from the cutter and sand the edges of the discs smooth. Dry fit one at a time into the end of the fitting, if the fit is good use a hand drill or drill press to drill the 3/32 holes thru the plastic using the holes already in the plug as a guide. Use electrical tape to hold the disc in the well you created on the plug while you drill.

Step 6: Spray the length of your 2-56 thread rod with two coats of Plastidip spray, ensure that you completely cover the thread rod as this will be the electrical insulation for your pins. This part is critical, allow the Plastidip to dry completely before moving forward.

Step 7: Once the Plastidip is dry use a set of bolt cutters to cut the thread rod into lengths of roughly 3.5 inches without damaging the Plastidip coating.

Step 8: Place the sections of thread rod thru the holes on the plug and align the plastic discs on each end without pushing them fully in place into the wells.

Step 9: Mix epoxy and fill the bottom (thread side) well opening with epoxy, then push the disc down into place while holding the pins. The idea is to have excess epoxy squeeze out around the pins and plastic disc. Excess should be wiped away, but use enough to get a complete seal. Allow the epoxy to setup for its specified time.

Step 10: Repeat previous step using RTV on the exterior side (hex end), excess RTV should be seen squeezing out of seams and around the pins. Wipe away excess.

Step 11: Allow the adhesives to cure, then use a grinder or Dremel cut off wheel to grind the ends of the pins flush with each other and remove the damage caused by the bolt cutters. If you plan on using ring connectors simply thread on the nuts with a ring connector, if you wish to solder wire connections use a blaster or Goo Gone to remove the exterior Plastidip from the exposed pin sections.

