

## Solvent Weld Assembly Guide for ReefPoint® DIY Frag Tanks

### BEFORE YOU BEGIN, PLEASE READ THE ENTIRE ASSEMBLY GUIDE

#### What you will need:

**Acrylic solvent.** We recommend Weldon® 3 or Weldon® 4. Weldon® is very rapid setting while number 4 gives you a little more time. Both are excellent. Do not use any other glue or solvent such as bathroom caulk, tub sealers, floor glue or similar.

**Squeeze Applicator Bottle & Needle.** You can purchase these on our web site or somewhere else. Look for “Luer Lock” Squeeze Applicator Bottle and 25 Gauge blunt tip solvent dispensing needles. Bottles and needles are often sold separately because some needles wear out, break, or clog. If purchased separately, be certain both the bottle and the dispensing needle are “Luer Lock” compatible.

The bigger the gauge number, the thinner the needle. For example, a 25 Gauge needle is extremely fine and gives you very good dispensing control whereas an 18 Gauge needle is a bigger diameter and better suited for thicker glues. Avoid the larger needles when using solvent.

**Blue masking/painter’s tape.** Blue masking tape, also known as painter’s tape, will be needed to hold your panels in place. Do not use other tapes such as duct tape or gorilla tape.

**Lint free polyester cloth or 100% cotton cloth.** You will be placing the pieces on this to prevent scratches and accidental capillary solvent travel onto the surface of the tank if too much solvent is applied. Polyester cloth is preferred but cotton also works well. Test a small piece of the cloth with solvent to make sure it does not melt or attach to the acrylic.

**Assorted household items to act as weights.** A book, can of soup, or similar to place on top of the tank and also possibly inside of it to hold the pieces together as they set up. Nothing fancy but avoid anything that can damage the acrylic pieces. These weights do not need to be very heavy, just enough to keep the bonding surfaces together.

**Good music.** Building your tank will be fun and relaxing. No need to rush. Take your time and relax.

#### Points to consider before you begin:

**Check out some online videos and how-to posts.** There is no single “correct way” to build a DIY tank and many hobbyists have their own tips and tricks. Take some time and learn how others have built their aquariums. Remember, you are using acrylic panels, not glass and some of the steps in building glass tanks may not apply.

**Prepare your work area.** Have enough space to be able to lay out all your parts. Good lighting is important because it is easy to miss unsealed spots. make sure your work area is well ventilated if you are sensitive to the smell of solvent.

**Dry fit your pieces.** Many parts look the same and it is easy to make a mistake. Dry fitting the parts ensures you have them in the right place. The base of the tank is slightly larger to form a very slight

ledge. This helps prevent solvent from travelling down the edge. The two side pieces are slightly smaller and dry fitting will ensure the right pieces are glued to each other.

Dry fitting is also where the tape is used to hold it all together. You are essentially assembling the entire tank with tape. You may leave the protective paper on during this dry fit step or remove it.

Since this is a solvent build and the pieces being joined together are small, they will touch each other. There will be no need to keep a gap between them while gluing like in bigger tanks. The solvent will travel along the weld seam by capillary action. You will be able to see this as it happens. With a little experience, your skill level will rapidly increase.

**Build your aquarium at room temperature.** Let all the pieces come to room temperature before you begin. Do not attempt to build it outside or in a cold garage.

**Remove all protective films and papers before gluing.** Clean the pieces with a soft cloth or painter's tack rag to remove any remaining dust or chips.

**Take your time.** There is no need to rush. Since silicone takes time to set and does not fully cure for many hours. If you make a mistake or run into trouble, it is easy to start over.

**You will be building the overflow assembly separately before installing it into the tank. As mentioned above, some pieces may have protective paper or plastic skin on them. Remove these and wipe off any production chips or dust that may remain.**

## **OVERFLOW ASSEMBLY**

Step 1. Place one wall face down on the cloth. The cloth should not be springy.

Step 2. Dry fit the other wall along the edge you intend to glue it to. The pieces in your kit are machined very accurately and there should be very little variation. However, always line up the bottom edges as close as possible, the top edges can always be off a little bit if necessary.

There should be no space between the pieces you are going to weld together. Once you are satisfied with the dry fit, you will be ready to apply the solvent.

Step 3. Apply the solvent from the inside edge of the overflow. Begin by gently squeezing the applicator bottle to remove any air in the needle. Then lower the needle to the edge seam and continue to squeeze gently. Don't rush it. You will have plenty of time. Move the needle along the seam and keep gently squeezing the bottle. The solvent will travel along the bond edge as you move the needle. The overflow pieces are black and it will be difficult to see this but you will be able to see the progression.

After you are finished attaching the overflow pieces together, leave them alone. Weldon® 3 will set up very quickly, in a matter of just a few minutes. Number 4 will take a bit longer. Once the pieces are set, move the overflow assembly off to the side and let it cure.

## **TANK ASSEMBLY**

The walls will be assembled first. Then they will be attached to the bottom. Before you begin, dry fit the pieces again. Identify which pieces will be bonded to each other and place them in a manner where you won't glue up the wrong pieces (like for example the back to the front or the sides to each other).

You will be assembling the walls in three steps. The first step is to glue the front to one of the side pieces. The second step is to glue the back to the other side piece. The final step will be gluing both of the assemblies to each other to form the outside perimeter of the tank.

Step 1. Lay the back piece flat onto the work area. Line up one of the side pieces along the edge of the back piece where you intend to glue them together. Again line up the pieces where the bottom edge will be. This is a critical step. The better you line up the pieces, the better your bottom seam will be once you are ready to glue the bottom. When you are satisfied with how everything looks, repeat the steps above in the overflow assembly. Since these are clear pieces, you will be able to much better see the solvent travel along the seam.

Step 2. Repeat Step 1 with the front piece and the remaining side piece.

You now should have two assemblies that look exactly alike except the back wall has a return hole in it. You are now ready to join the two assemblies to form the tank's perimeter.

Step 3. Place the back wall assembly flat in the work area. Then place the front wall assembly on top of this assembly. Line up the edge of the assemblies you intend to glue together and repeat the steps above for gluing them. By now you should be pretty good at this. Once again, take extra time to be sure the bottom edge is lined up as best as possible. Let set for a few minutes then flip it over and finish the last wall seam.

Your tank is taking shape quickly. At this point, there should be an assembled overflow box, the entire tank perimeter and one remaining piece, the bottom. This is where the effort to line up the other pieces will make the most difference if the bottom edge of the wall assembly was lined up properly. If for some reason the wall pieces are off by a little bit, use some sandpaper and GENTLY level them. Be careful.

Step 4. Position the bottom piece into the work area. Carefully place the wall assembly on top of the bottom piece. Since the bottom is slightly oversize, adjust the wall assembly until it looks good and proportional. Once you are satisfied with the fit, attach the wall assembly to the bottom. This is where you can place a book or two on top of the tank assembly to press everything down so the bottom edge makes good contact along the entire perimeter. Let assembly set up. The last step is installing the overflow. This step will be the most challenging since there will be three planes to glue up instead of just two.

Step 5. Dry fit the overflow. It should sit nicely with the edges squared up against the inside of the tank walls. Attach the bottom edge of the overflow assembly to the bottom of the tank.

Step 6. Place the tank on its back so that you can now apply solvent along the overflow wall and the back of the tank. When you are done apply the solvent, place a weight such as that soup can mentioned above, on one edge of the overflow to hold the bonding edges together. After that bond sets up, flip the tank and repeat for the last seam. Let everything cure for 24 hours if you used Weldon® and a minimum 36 hours if you used Weldon® 4.

**CONGRATULATIONS. YOUR BUILD IS COMPLETE!**

Water test your tank. Especially pay attention to the overflow seams. If there are any leaks anywhere, don't worry, you still have one last solution, silicone. Simply empty the tank and let everything dry out. Use a hair dryer to speed things up if you want. Now, apply aquarium grade silicone to the problem

areas. Follow the silicone manufacturer's directions and let the silicone cure for 48 hours. Your tank should be completely leak free.

Enjoy!