



# OVAL POND SOLAR WATERFALL SPILLWAY

## MATERIALS LIST

The Solar Waterfall kit consists of the following:

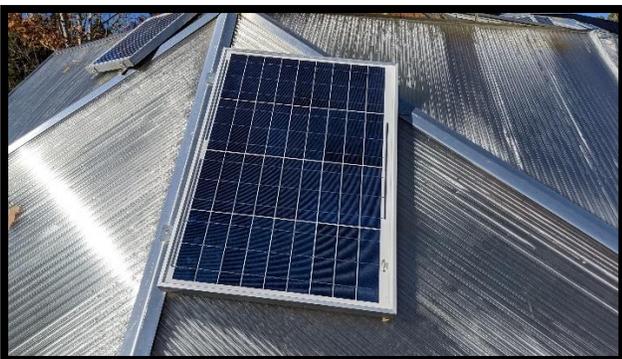
- Spillway with composite shims
- Course filter
- Fine filter
- Water pump
- Pump mounting plate
- 30W Solar panel
- Hardware
- Electrical Gang Box
- Wire
- Switch
- BioBall filter media with mesh bag

## INSTALLING THE SOLAR PANEL

The solar panel is installed on the south side of the dome, so that it slopes at approximately 45 degrees to the horizon (or  $15^\circ + \text{latitude}$ ) to get maximum solar input, especially in the winter months. See “Solar Panel(s) Installation” Video 23-V2 for visual on mounting the solar panel. Depending on the door orientation, the gable roof over the door is a suitable position as it will not block sun from entering the dome.

Attach the panel using three of the mounting brackets on the panel. Screw through the glazing into the wood struts below using the provided 2” roofing screws with washers. Only three of the brackets will be used. Having a fourth bracket gives you more flexibility of attaching locations. Drill a hole (approx. 1/4”) through the glazing, preferably next to a strut and underneath the solar panel, for the wire to go inside the dome. The hole size will be dependent on the panel provided, so inspect your panel wiring before beginning. Seal around this hole on the outside with silicone after the wire is inserted.

With auxiliary wire, the grooved wire is positive, and the smooth is negative. The white wire from the panel is usually used for the positive (+ve) pole and this wire is connected directly to the grooved wire, and the black wire is usually used for the negative (-ve) pole and this wire is connected directly to the smooth wire. Strip the ends of the auxiliary wire and use the provided twist on wire connectors to connect the solar panel wires with one end of the auxiliary wire. Taking the shortest pathway, route the wire along suitable struts on a diagonal to the area of the pond where the pump is located. You will have to “fish” the wire through the hubs in this process. Staple the wire to the struts using the quantity of staples per strut shown on the parts list. **Hint:** If you put the wire on the upper sides of the struts and staple near the glazing, the wire will be less noticeable.



## ATTACHING SPILLWAY TO CROSSBAR



Attach the tubing to the spillway reservoir. Place the spillway towards the center of the crossbar so that the water won't spill out of the pond. Place the 2 composite shims under the spillway to create a slight downward angle. Drill two 3/16" holes through the spillway into the crossbar and place a drop of silicone in the holes. Secure using 1-1/2" stainless steel screws.

## WATER PUMP & MOUNTING BRACKET

The water pump rests on the aluminum mounting plate. Place the pump so that the removable cover faces out (for cleaning accessibility). Secure the pump to the plate with the included zip tie, running it between the 2 rivets on the underside of the plate.

The tubing from the spillway can be attached directly to the top of the pump and secured using the hose clamp, as shown in the photo to the right. This assembly then hangs over the top edge of the pond and can be removed easily for cleaning.

Alternatively, it is possible to use several rigid plastic extenders and clamp the tubing to those to get extra length and quicker disconnection to regularly clean the pump (See Below).



## MOUNTING THE ELECTRICAL GANG BOX



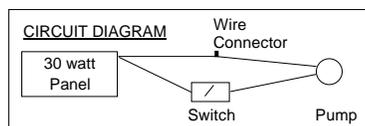
Punch out one of the tabs in the bottom back of the electrical gang box, then feed the wires from the solar panel and the pump through the “tapped” hole in the gang box. You can mount the box on the outside of the pond crossbar or on a nearby strut. There is plenty of cord on the pump for either installation position. Use the attached nails or use two screws to mount the gang box.

## WIRING THE SWITCH

After feeding the wires through the box, cut the auxiliary wire coming from the solar panel so that you have enough wiring to work with, then strip the wire ends to expose about 3/8” bare wire. Connect the black wire from the pump (-ve) with the smooth wire from the solar panel and secure it with a twist on wire connector. **HINT:** The pump cord unscrews in the middle and makes it easier to work with just the short end.

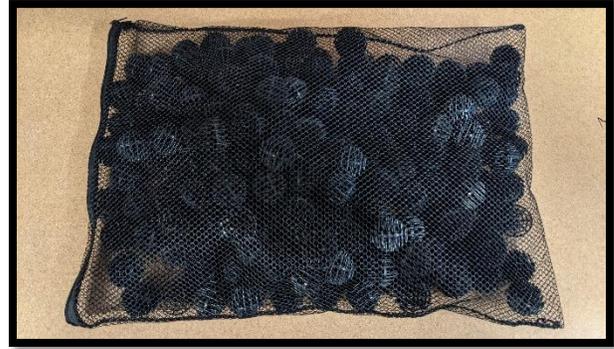
The remaining wires will connect to the switch. The solar panel wire will attach to the top screw of the switch (orient the switch so that the words “ON & OFF” are not upside down!). Keep the switch in the off position. The remaining red wire from the pump (+ve) will attach to the bottom screw of the switch. If you unscrewed the wire coming from the pump, reconnect it. **With the pump submerged**, turn on the switch to ensure correct installation. If it does not work, check the connections. If it still does not work, you may have to reverse the two pump wires or reverse the two solar panel wires.

After making sure the pump works, fasten the switch to the gang box and then fasten the switch plate to the switch with the provided screws. When in the “ON” position the pump will only run when the sun is shining.



## BIOBALLS AND FILTER MEDIA

The BioBalls provide an excellent source of secondary filtration media to harbor beneficial bacteria. This biological filter media helps keep your pond healthy, balanced, and clear by increasing the surface area for beneficial bacteria to grow on. For best results, submerge the mesh bag of BioBalls into an area of your pond in direct contact with flowing water. Use a piece of fishing line or something similar tie the bag to the crossbar. This will keep the BioBalls from floating away from the moving water.



There are 2 filters that come with the spillway kit. Install the course filter in the back and the fine filter in the front of the spillway reservoir. You will need to put a slight bend in the filters to get them to fit. Decorate the spillway to add some beauty to your Above Ground Pond. Your solar waterfall spillway should now be ready to use!

