



## The Shaft by CRS Nanobubble Generator Installation Instructions & Pump Operating Recommendations

### Items needed:

- Saw
- Measuring tape
- Marking pen
- Deburring tool
- PVC primer
- PVC cement
- 2 x 2" NPT to PVC Socket Unions ([click here](#) to purchase)
- PTFE thread tape

The Shaft has 2" NPT female threaded ends and should be installed on the discharge line of the pool pump. The Shaft can be installed horizontally, vertically or diagonally and water can flow in either direction.

### Instructions:

1. Install the male NPT ends of the union into the Shaft and secure with thread tape.
2. A. Measure the total length of the Shaft with the socket unions.  
B. Measure the length from the outer edge of each female end to the pipe stop inside the female ends.  
C. Subtract measurement B from measurement A to determine the length of pipe that must be cut away to allow the installation.
3. Cut pipe and deburr.
4. Glue the socket ends of the unions into the opening of the pipe.
5. Connect the unions and install the shaft.

### Pump Operating Recommendations

The Shaft operates on the flow of water as driven by the pool pump. Once it is installed, we recommend running the pump long enough to turn over the water in the pool at least 3-4 times per day for the first 10-14 days. After that, The Shaft will operate effectively when the water turns over at least 1.5 to 2 times per day.

For best results, a variable speed pump should be set to permit a flow rate of at least 40 GPM for the CRS5500 and at least 20 GPM for the CRS2500.

Generally, the more the pump runs the more The Shaft is doing to help clarify and enhance water quality as well as protecting pool surfaces from buildup and staining. Should heavy usage, inclement weather, algae infestation or other conditions detrimentally impact water quality, we recommend that pump run times and flow rates are temporarily increased until water quality improves.

### Installation Diagram

