

Stucco Pumps, Concrete Pump, Shotcrete, and Gunitite

DIY Shotcrete is Easy With the Stucco Sprayer

The most important step of preparing for [DIY shotcrete](#) is to select equipment that all works together. [Click here](#) to learn more.



[Shotcrete Vs Gunitite](#): Which is best?

Learning to pump and spray concrete continues to be an interesting fascination for me. It all started when I wanted to build a home with SCIPs from the 3d Insteel company. At the time, DIY shotcrete was not easily possible. As the hobby grew into a passion, we introduced the wall stucco sprayer. Producing a tool that is made in the USA, and that is the best sprayer available, is a great part of this journey. In most cases, I now choose the stucco sprayer over the stucco pumps because it is so much more efficient to use. We will be continually improving and refining the sprayer as we get new ideas and suggestions. If you have a suggestion on how we can design a better tool, please let me know.

Nolan's passion of concrete has led to collecting and working with many different mixers and cement pumps for over a decade. He is excited to talk about plaster sprayers & pumps, and the scale of the jobs to match each set up. So far he has had more than a dozen stucco, grout and concrete pumps from the tiny Quik Spray Carousel Peristaltic Pump, all the way up to a 85 HP Mayco Ball Valve Pump. Below is a list of the pumps and mixers he has worked with. He has included his impression and notes about modifications with each one. This is where helpful thoughts about mixing and pumping are given so he can share his fun hobby.

Quikspray 1" Carousel Peristaltic Squeeze Pump, electric powered.



I'm still playing with this one. It is very low volume similar to a texture sprayer or perhaps a texture sprayer on steroids. This pump is handy for coatings less than 1/4" thick. It would also be a good grout pump for filling in the fire proofing around steel door cavities. This picture is of a friend's faux rock work. It is a Wine cellar that looks like a mine tunnel. The details of the finished job are amazing right down to using miner's lights and an ore cart! He started by carving all the shapes with recycled styrofoam. His main tools were carving knives and spray glue. After the bulk of the shapes were made with styrofoam, he would use the Quikspray pump to put on a 1/4" to 3/4" thick coating.

Quikspray 1.5" Carousel Peristaltic Squeeze Pump, air powered.

Not much torque compared to hydraulic drive but I liked this pump because it was easy to move. I added a second set of low profile wheels to the pump so that it would fit under an Imer Pan Mixer easily. This turned out to be a very helpful improvement. Using a 185 CFM compressor to drive this pump wasn't super efficient. My plan was to switch it to electric over hydraulic drive. Before I could get to the re-power, I ended up sending it to Dennis Ginter. He used it and my Olin pump to build a neat thin shell dome workshop.



Xlent 1.5" Peristaltic Plaster Pump.

Nice hydraulic drive. The poor hopper lay out needed improvement. Of the folded sheet metal pumps, this one showed good promise with the hydraulic drive and built in compressor. Unfortunately the company was slow to improve their offerings. As far as I know Xlent Equipment has closed.



One pump that is on my list to try but I haven't yet is the Monolithic concrete pump. I mention it here because as a folded sheet metal pump, it shares some similarities with the Xlent pump. The Monolithic pump does have a better hopper design than the Xlent. One trouble area with the 1.5" and smaller pumps is the squeeze tube design that tends to wear out quickly. One friend that went to Monolithic Dome school was surprised to see a squeeze tube wear out so quickly while he was working on his first dome. In the 2" and larger pumps some manufacturers use a squeeze tube with a stainless steel reinforced braid. These tubes last much longer.

I make it a point to remove the tube when storing the pump. This helps the tubes last longer.

Sun 2L6 rotor stator or mixer/pump.



Hydraulic over electric drive. Cement pump, slurries like Monokote MK6 fireproofing or papercrete. Similar to Putzmeister, Sto or Machine Technologies as a rotor stator. Nice and compact. The mixer and pump were designed to roll easily but only be used together. One clever feature was the incoming water to the mixer passed through a water to oil heat exchanger. This cooled the hydraulic fluid on the pump. The tube frame of the pump was also the hydraulic reservoir.

Blascrete Equipment

Blascrete Equipment has been a great company to work with. Here are three of their [concrete pumps](#) we have owned.

- Blastcrete RD6536 2" peristaltic tube, hydraulic drive from a skid steer. Wonderful pump, lots of torque, great volume for shotcrete with a 1.5" or 2" hose. My favorite stucco pump – shotcrete pump. This machine has a range of pumping site mixed stucco up 6 yard batches of redimix shotcrete. As a stucco pump, I suggest the radial orifice nozzle that Blastcrete manufactures. Their stucco nozzle doesn't have the air jet in the middle so you get less clogs. If you have a crew of 6 and are doing this kind of work several time a week, then I would give Blastcrete's stucco pump real consideration. Their 2" peristaltic pump also uses a steel braided squeeze tube that has many times the longevity of the fiber reinforced peristaltic hose.



- Blastcrete 2.5" hydraulic drive with Honda hydraulic power system. (I still have this concrete pump) Great site mixed shotcrete pump for large crews. We just used this pump to build a Monolithic dome West of Eugene Oregon.
- Blastcrete 3" squeeze pump. Great for ready mix. We have sprayed more than 100 yards of shotcrete per day with this pump.

[Jim Farrell](#) the owner of Blastcrete Equipment Company has become a good friend and is a great resource for finding the perfect pump to match the scale of the work.



This was a fun job. First we used a Cat D7 and a giant Cat sheep's foot roller to shape the land. Then we dug a ditch all the way around the edge of the pit to lock in the pond liner. Next we covered the whole thing with welded wire mesh. Once the welded wire mesh was installed we started with the shotcrete quickly to limit the liners exposure to the sun. At the peak we sprayed more than 100 yards of shotcrete per day to build three of these reservoirs. At one point there was 275' of concrete hose to get to the far

side of the project. The Blastcrete squeeze pump just kept pushing like an Energizer Bunny! Our skid steer was on another job so we used an auxiliary hydraulic power supply for this project. If you need to pump concrete but it is not the only thing you do for a living the Blastcrete squeeze pump is the right scale.

Challenge Cook 3" Squeezecrete Pump.

Monster torque. Sent to pacific Gunitite in Hawaii. I miss this pump for its Rube Goldberg design of hydraulic pumps, gear reducers and chains. It was a great pump and fun to learn the details of why it was made this way. The Challenge Cook Squeezecrete pumps were the first peristaltic concrete pumps. The idea came to them when a heavy truck was rolled over a hose full of concrete to clean it out! Just like squeezing toothpaste out, the Squeezecrete pump was a "Eureka" moment for the men trying to clean out a hard setting hose.



Putzmeister 4" squeeze tube pump.

Diesel power up to 1.5" rock. Great engineering. We converted this pump to a 3" squeeze tube to be more in scale with shotcrete work. Note the shell of the ferrocement tank on the background just before the shotcrete is applied. This pump is now with Peter Epperson of Pacific Gunite in Hawaii.



Olin Ball Valve 525 pump.



Nice ball valve set up but the longer stroke of the Olin 545 would be better. Thanks to [Ray McNair](#) for help with this Olin pump and this Reed SOVA. The [Olin concrete pump](#) uses a gas charged compensator to smooth out the flow of material between strokes. Other companies have tried similar ideas but Olin is the only one I am aware of that

works this good. Ray has convinced me that the longer 24" stroke of the 545 Olin is a better choice. The longer pump stroke makes for smoother pumping.

Reed SOVA Gunite Rig



Here you see our crew diligently cleaning every part on our Reed SOVA rig. I feel very fortunate to have a wife and kids that can play and work together with me.

Mayco 85hp ball valve grout pump.



Some call it a Monster ball pump, I think of it as a big slug with old technology. We don't miss the Mayco. I have

owned and played with all of the pumps and mixers above. The pump below is from a customer in Canada that would like more information. If you can help with the details, please help us solve the mystery.

Plaster pump mystery:

Blair in Canada is restoring this antique plaster pump. He contacted me for pump advice and I was happily stumped. I do not know the manufacturer of this pump. If you recognize it or know the history, please let us know.

It is a small ball valve pump designed for finish stucco and plasters. It is probably an early drywall texture sprayer or tiny grout pump. The dual output camlocks would go to a Y manifold and then to the plaster hose. It also has a built in dual piston single stage air compressor. Blair would like to learn the manufacturer and also locate a source for pump seals / pump repair parts.



Do you recognize this plaster pump? Plaster pump

If you are also a concrete pump enthusiast, [please say hello](#). It is still an amazing thing to me when I see something so permanent be pumped through a hose!