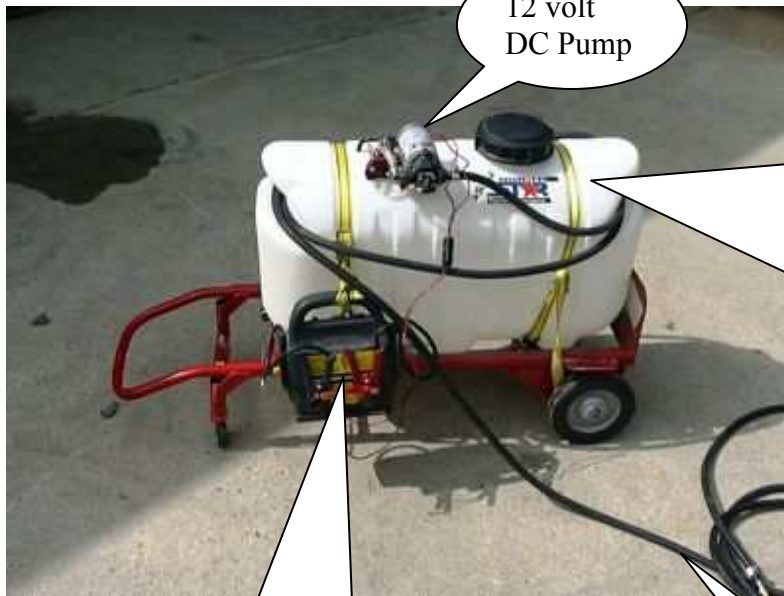


How to Make Your Very Own Jackhammer Spray Dust Control

By Ken Hoffner, CIH, CSP—NJ Laborers' Health and Safety Fund (May 2007)

A jackhammer spray dust control can be constructed from readily available parts, and adapted to your needs. There are essentially four main sections to the system: a tank/pump unit, an electrical connection, a water hose to the jackhammer, and the jackhammer spray hose/nozzle attachment.

These four basic parts can be altered or modified to fit your construction situation. For example, the tank/pump unit can be mounted on a hand truck, securely attached to a compressor trailer tongue, or secured in the back of a pickup. Where you locate it is up to you.



12 volt
DC Pump

Here is the basic pump and tank unit. It is ordered in one piece from Northern Tools. The unit in this picture uses a 26- gallon tank, but other tank sizes can be ordered. This tank/pump is mounted on a hand truck for portability. See the attached parts list for the Northern Tools Part number and description.

A portable 300 amp jump starter/12 Volt DC power supply that is available at most auto parts stores powers this jackhammer

Hose to Jackhammer

Electrical Connections

Electrical connections are adaptable for this unit. The spray tank pump is a 12-volt, 60-psi constant flow pump that comes already attached to the tank and ready to use. The pump has red and black wires and mini-alligator clamps for hooking into a 12-volt battery. The unit shown above was simply connected to a portable jump start rechargeable battery pack available at any

auto parts store. Using a battery pack makes the jackhammer spray control unit fully portable, however the battery pack must be recharged at the end of each use. Field tests have shown that the portable jump start battery pack used here has sufficient amp-hours to supply electricity to the pump for an entire shift.



Portable 300 Amp 12 Volt DC Power Supply (Front and Back)



The mini-alligator clamps supplied with the tank/pump unit are simply connected to the portable battery pack. The battery pack is then tied onto the tank hold down straps (also supplied with the tank pump unit).

Water Hose from Tank to Jackhammer

The parts list contains the part number for the 3/8-inch internal diameter rubber hose used to supply the jackhammer with 60-psi water from the pump. The length of hose can be varied

depending on your situation. The key components of the hose are a quick disconnect (female) at the jackhammer end, preceded by a water shutoff valve. If you would like, you can also install a quick hose disconnect at the pump end of the hose, or the hose can simply be attached to the pump using hose clamps. The water hose should be cable tied to the air hose to make one unit.



These pictures show the end of the water supply hose with the quick disconnect and in-line shutoff valve. Part numbers for the hose, disconnects, and valve can be found in the parts list.

Jackhammer Hose And Spray Nozzle Attachment

The jackhammer hose and spray nozzle attachment is designed to be quickly attached to any jackhammer, breaker, or chipper using electrical cable ties. This jackhammer hose has a brass male quick disconnect, followed by the proper length of hose run down the side of jackhammer, and a misting nozzle assembly that goes no further down than the end of the jackhammer body.



The jackhammer hose and nozzle assembly is simply cable tied to the body of the jackhammer, and plugged into the water line. Parts numbers are available in the parts list.



The spray nozzle assembly consists of a misting nozzle, reducer, short section of threaded brass pipe, reducer, and barbed hose connection. (See parts list). Spray strength can be regulated using the on/off valve.



Disclaimer

The guidance provided on this site is for illustrative purposes only. The New Jersey Laborers Health and Safety Fund assumes no responsibility for any injuries, damages, or problems that may occur to people or equipment during the fabrication or use of this water spray control. The use of this spray control does not guarantee that exposures to silica and other dusts will be controlled to below OSHA, NIOSH, or other exposure limits.

Jackhammer Spray Control Parts List (5/07)
 (Note: Every part here can be ordered online and shipped to you)

Part Description	Supplier and Part #	Cost
<p><i>North Star 26 Gallon, 60 psi Spot Sprayer:</i> A 26 Gallon Polyethylene tank with a 60 psi constant pressure 12V DC pump. Strap the tank using the provided tie-downs securely to the hand truck.</p>	<p>Northern Tool and Equipment Part 26812 www.northerntool.com</p>	<p>\$149.99/unit</p>
<p><i>All-Flow EPDM Rubber Multipurpose Hose, 3/8" ID, 1 1/16" OD, 200 psi, black:</i> Rubber Hose that goes between the pump outlet and the nylon in-line water cutoff valve. Can be ordered in any length, but suggested 30 to 50 feet for maximum flexibility on the jobsite. Cut off 3 feet of hose to be used on the jackhammer. On the remaining length of hose, clamp one end of the hose to the barbed pump outlet on the top of the tank. At the other end, cut off about 6 inches of hose and insert the nylon on-off valve (4796K73 below) where the cut was made. At the end of the hose, clamp in the female quick connect hose fitting (6534K37).</p>	<p>McMaster-Carr Supply Co. 5304K22 www.mcmaster.com</p>	<p>\$0.72/foot 50 ft.= \$36.00</p>
<p><i>Worm-Drive hose clamp w/zinc-pltd stl screw 1/2" to 29/32" clamp ID range; 1/2" band width:</i> Hose clamps to connect any parts to the rubber hose line.</p>	<p>McMaster-Carr Supply Co. 5415K32</p>	<p>10 pack Box \$6.14</p>
<p><i>Easy-grip nylon miniature ball valve, 3/8" barb X 3/8" barb connection:</i> Water flow shutoff valve at the end of the water supply line, just before the quick connect fitting. Note: Any suitable brass ball valve that fits the 3/8" ID rubber hose will also work here.</p>	<p>McMaster-Carr Supply Co. 4796K73</p>	<p>One Valve \$10.46</p>

<p><i>Industrial-Shape Hose Coupling Push-To-Connect Socket, 3/8" Hose ID, 1/4" Coupling Size:</i> Quick connect fitting for the end of the water line (female). Use the female end on the water supply hose.</p>	<p>McMaster-Carr Supply Co. 6534K37</p>	<p>One Fitting \$6.15</p>
<p><i>Brass Industrial-Shape Air Hose Plug, for 3/8" Hose ID, 1/4" Coupling Size:</i> Quick connect fitting for the beginning of the jackhammer water line (male). Use the male end on the 3 foot section of hose reserved for the jackhammer.</p>	<p>McMaster-Carr Supply Co. 1077T26</p>	<p>One Fitting \$2.18</p>
<p><i>Brass Hose Fitting Barb X Male Pipe for 3/8" Hose ID, 1/8" Pipe, Packs of 10:</i> Fitting that connects the spray nozzle assembly to the hose. Clamp this into the other end of the 3 foot hose used on the jackhammer.</p>	<p>McMaster-Carr Supply Co. 5346K17</p>	<p>One Pack of 10 Fittings \$9.25</p>
<p><i>Med-Pressure Extruded Brass Threaded Pipe fitting 1/4" female X 1/8" female pipe size, reducing hex coupling</i> This is a coupler that connects the barbed hose fitting above to a short piece of threaded brass pipe (4568K132) used in the nozzle assembly. You need two of these (one at each end of the pipe). On the other end of the brass pipe, the second reducer is used, and the spray nozzle is screwed into the 1/8" end of the final reducer.</p>	<p>McMaster-Carr Supply Co. 50785K181</p>	<p>Two fittings @ \$1.91 each \$3.82</p>
<p><i>Standard wall Brass Threaded Pipe Nipple 1/4" pipe size by 1-1/2" length, threaded length, schedule 40</i> Short piece of brass pipe that forms goes between the reducers above.</p>	<p>McMaster-Carr Supply Co. 4568K132</p>	<p>One piece \$1.52</p>

<i>Misting Nozzle Brass, Cone Pattern, 6.32GPH @ 40psi. Spray nozzle.</i>	McMaster-Carr Supply Co. 3178K76	Nozzle: \$3.81
<i>Nylon cable tie, 28" Length, 9" Bundle, 120# Tensile strg, UV-resistant black: Large Electrical Cable Ties to attach the water line assembly to the jackhammer.</i>	McMaster-Carr Supply Co. 7130K942	1 package of 10 ties: \$3.81
<i>Vector 300 Amp Start-It Compact Elite Jump Starter 12 Volt DC Power Supply Battery power pack for the jackhammer spray. (Note: Other brands of portable 12 volt batteries may work as well)</i>	JC Whitney Company ZX265545 www.jcwhitney.com	1 Unit \$59.99
<i>Hand truck with 4 wheels Allows the water supply tank to be rolled around the jobsite.</i>	Home Depot 700# Hager Hand truck with pneumatic tires (SKU 053417031532) or McMaster-Carr 9924T21	\$69.99 \$77.54

Total Parts Price (using least expensive parts, portable battery pack, a hand truck, and 50 foot water hose from pump): \$363.25+ Shipping Charges and Taxes.

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Credits

The Jackhammer Spray Dust Control unit was developed by an informal workgroup interested in controlling silica exposures on NJ road construction sites. The group is composed of representatives and members of the following organizations:

- Utility and Transportation Contractors Association of New Jersey
- Associated General Contractors of NJ
- Laborers International Union of North America Locals 472 and 172
- New Jersey Laborers Health and Safety Fund
- New Jersey Department of Transportation
- New jersey Department of Health and Senior Services
- New jersey Department of Labor and Workforce Development
- National Institute for Occupational Safety and Health, Division of Applied Research and Technology, Cincinnati, OH
- USDOL, Occupational Safety and Health Administration Avenel, Hasbrouck Heights, Marlton, and Parsippany Area Offices.

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