Recirculating Water System

Shown below is a multi-barrel water reclamation system. This system uses multiple barrels to allow for better settling of the particles. It illustrates the basics of what is needed to recycle cutting water. Below is a schematic of a single barrel system where limited space is available. The two barrel system will allow for better settling.

The three key elements of a recirculating system are labeled with the three green dots:

1. Collect and settle large particles. The sump, Primary settling.
2. First settling barrel. Water is pumped from sump to the bottom of the barrel.
3. Second settling barrel. Water flows from top of first through a tube to the bottom of the second barrel. The water at the top of this barrel is pumped back to the work area for use in the tools.

Very little volume of water is needed to reduce dust and keep your blades cool. The total volume of water determines how long the particles have to settle.

Below is a schematic diagram for a single barrel system, along with a parts list, for to use in a small studio.
Recirculating Water System

WORKSPACE

Recirculating 1 Barrel Water System for Wet Carving

1. Little Giant Utility Pump
   Plastic Barrel w/ Top Cut Out (Craig's List)

2. 5/8" OD x 1/2" ID Vinyl Tube from Pump (Home Depot)

3. 5/8" x 15' Garden Hose (Home Depot)

Brass Hose Faucet Manifold (Home Depot)

5/8" OD 1/2" ID Vinyl Tube (Home Depot)

Pump Beckett 400 GPM Fountain Pump w/ auto shut off (Home Depot)

1-1/4" PVC 90° STREET ELBOW (Home Depot)

1-1/4" x 3/4" PVC reducing bushing (Home Depot)

3/4" close galvanized nipple (Home Depot)

Brass 3/4" Swing Check Valve (Home Depot)

3/4" x 1/2" Poly insert MALE adapter (Home Depot)

Hose Clamp (Home Depot)

Plastic Barrel

Diffuser Tube 1-1/4" PVC PIPE (Home Depot)
## Recirculating Water System

### Parts List Single Barrel System

<table>
<thead>
<tr>
<th>ITEM</th>
<th>SOURCE</th>
<th>PRICE</th>
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| Rain barrels  
There are many folks selling these. Plastic Food Grade (used)  
55 gal | Craigs list  
SKY (He has many sizes) - 253 495-5943 In Puyallup | $20 |
| Little Giant utility pump - This pump can pump water up 25’ and will supply enough pressure to your tools, even through small diameter tubing. This pump is also very good for flushing and cleaning the sediment out of the barrels. | Online - Global industrial. Com  
Others also sell it locally, but the price is higher. Whitecap, local stores.  
[http://www.whitecap.com/shop/wc/56171](http://www.whitecap.com/shop/wc/56171) | $115 w/ shipping |
| Beckett 400 GPH w/ auto shut off. | A fountain pump that Home Depot sells. I use this pump to pump from the sump to the barrel. It would work for the upper pump but doesn’t have enough pressure for my uses. Sensor on pump needs to be cleaned every so often.  
| ¾” swing check valve brass | Home Depot | $9.67 |
| 5/8”x1 2/8”x 20’ vinyl tube | Home Depot | $7.26 |
| Brass hose faucet manifold | Home Depot | $15.47 |
| 1-1/4”x10” PVC pipe | | $6.00 |
| 1-1/4” PVC el 90 | | $.98 |
| 1-1/4”PVC street el 90 | | $1.98 |
| 1-1/4” PVC bushing 1-1/4x ¾” SPGXMP | | $.98 |
| ¾” close Galv. Nipple | | $1.34 |
| ¾”x1/2” make adaptor | | $.73 |
| 5/8”x15” garden hose | | $7.97 |
| 2 Ea. Hose clamps | | |
| PVC cement | | |
| **Estimated TOTAL** | | $275 |
Recirculating Water System

Recirculating 2 Barrel Water System for Wet Carving

WORKSPACE

1. 1-1/4" PVC 90° STREET ELBOW (Home Depot)
2. 1-1/4" x 3/4" PVC reducing bushing (Home Depot)
3. 3/4" close galvanized nipple (Home Depot)
4. Brass 3/4" Swing Check Valve (Home Depot)
5. 3/4" x 1/2" Poly inner MALE adapter (Home Depot)
6. Hose Clamp (Home Depot)
7. 5/8 OD x 1/2 ID Vinyl Tube from Pump (Home Depot)
8. 5/8" x 15' Garden Hose (Home Depot)
9. Brass Hose Faucet Manifold (Home Depot)
10. 5/8" OD 1/2" ID Vinyl Tube (Home Depot)
11. Pump Beckett 400 GPM Fountain Pump w/ auto shut off (Home Depot)
12. Plastic Barrels with top cut out (Craig's List)
13. Little Giant Utility Pump

Recirculating 2 Barrel Water System for Wet Carving