

## Aluminum Beer Can Crusher

My knees are shot.

I drink beer.

I believe in re-cycling.

I built the device using city garden hose water pressure (~50psi). The outfall after crushing goes to a yard sprinkler. I used 4 3/4" electric sprinkler valves and a power supply from Home Depot. The first, single-ended cylinder was made using a 3" PVC pipe. I first used two ordinary light switches to operate the machine manually. I like computers so I purchased a programmable Logic Controller [PLC](#) and programmed it using a magnetic switch to determine the retract cycle.

There is a video at <http://www.no-wimp.com>

The double ended one, currently, only has a loader on the left side. The right side loader is in the making.

I will make more details available when I am done. I want to do a DVD video aimed at 7-12th graders to get into the physics and programming as well as using a device that can measure the minimum pressure required to crush a can.

**I suppose that this is the place to post a notice that the devices described herein can be very dangerous. A hand or finger could be severed or severely injured if the crusher is carelessly operated.**

A 3 inch cylinder at 50psi water pressure exerts 353 pounds of pressure. A 4 inch double ended cylinder at 50psi exerts 589 pounds of pressure.

Although my southern friends insist that pie are round and cornbread r square the formula for determining the area of a circle is: Pi times the radius squared or  $\pi r^2$ .

The 3 inch model is single ended so the pressure is exerted on all the area of the piston. The 4 inch double-ended model has a shaft on both sides of the piston so the diameter of the piston is 12.57 square inches less the area displaced by the 1 inch shaft, 0.79 square inches equals a total of 11.78 square inches times 50 psi equals 589.05 pounds of pressure exerted by the crusher.