

The Blown/Compressed Air method:

This is not a method for amateurs or average "do-it-yourselfers". Almost all big sprinkler systems such as golf courses and parks are winterized using compressed air. One small mistake can cause severe line blowouts regardless of what products are installed. HydroKnot LLC recommends that only experienced professionals perform Compressed Air Blow-Outs.

- 1) Shut off the water supply to the irrigation system.
- 2) Typically, very large air compressors are used for this method. A small irrigation system (3/4" PVC pipe or 1" poly pipe) will need at least a 20 cubic feet per minute air compressor, but it's recommended to use a 50 cubic feet per minute compressor or larger for typical home sprinkler systems. Professionals often use a large gas or diesel powered compressor that can discharge over 125 cubic feet per minute of air and can blow out a pipe as large as 3" diameter. Note: SCFM means "Standard Cubic Feet per Minute" and for our purposes here, it's the same thing as CFM. SCFM is a measure of CFM at a specific temperature and altitude.
 - a. NEVER use an air tank filled with compressed air or gas. Do not attempt to create more air flow by filling an air tank, then attempting to blow out the system with large bursts of air from the tank.
- 3) Start by removing the backflow preventer (for anti-siphon valves remove the whole valve). It's optional but recommended to install a blow out fitting (usually a tee with a 1" side outlet, and a short length of pipe with a threaded cap on it) to connect the compressor up to right after that shut off valve.
- 4) Next, connect the air compressor to the backflow preventer riser (on the downstream side), but do not turn it on yet. Do not blow air directly through the backflow preventer or through a pump, as they could be damaged. It is important that the air compressor has a pressure regulator valve with an accurate gauge on it.
- 5) Safety first! Plastic pipe is not designed to hold compressed air. In narrow confined spaces, air does not behave the same as water. If the air becomes trapped by a pocket of water in the pipes it can suddenly "burp" free with enough force to explode the sprinkler heads. Always increase the air pressure in the pipes slowly. Never attempt to blast out the water with a sudden burst of air. If the water cannot be pushed out with a steady flow of air, then a higher capacity air compressor is needed.
- 6) Using the automatic controller/timer, turn on the last valve that is furthest from the backflow preventer. Only turn on one valve at a time. If one valve is considerably higher in elevation than the others you may want to start with it rather than the last valve. But in most cases the last valve is the first one that should be blown out. If manual valves are installed just open them manually. If have anti-siphon valves are installed, then they either need to be removed or the compressor needs to be hooked up downstream from them.

- 7) Turn on the compressor and slowly increase the pressure. Carefully monitor the air pressure, never allowing the pressure in the irrigation system to exceed 50 PSI. You probably won't even need 50 PSI to blow out all the water. The lower you can keep the pressure, the better.
 - a. Watch the temperature also. Air heats up as it is compressed. The air can get quite hot when it leaves the air compressor, hot enough to melt the plastic sprinkler pipe. It may be necessary to add some extra length of hose between the compressor and the connection to the sprinkler system so the air can cool a bit before entering the sprinkler system piping.
- 8) Allow the air to run until all the water is blown out and only air is exiting through the sprinkler heads. Don't blow air through the system any longer than necessary.
 - a. If it takes more than 2-3 minutes for the water to get out, stop the compressor and let everything cool down for a few minutes, then start again. Be patient, and keep watching the pressure and temperature. The first valve will probably take a lot longer to blow out than the others because most of the water in the mainline pipes gets blown out of the first valve zone.
- 9) After only air is coming out of the sprinklers, turn off the air compressor, and turn off that valve. Open the next valve, turn the compressor back on and repeat the blow-out procedure. Continue until all the valve circuits have been blown out. Note that if you have anti-siphon valves you will need to switch the compressor hose to the next valve riser.
- 10) Never turn off all of the valves while the compressor is running! At least one valve must be open at all times; otherwise the sprinkler lines will probably burst.
- 11) When all the valves have been blown out it is a good idea to repeat the entire process again, starting with the first valve.
- 12) When the system blow-out is completed, turn the automatic controller off, or move it into "rain mode". Store the backflow preventer inside for the winter. Install threaded caps over all of the following, to ensure garbage, bugs, animals, etc. stay out of the lines during winter:
 - a. Open ends of the backflow preventer risers
 - b. Anti-siphon valve risers
 - c. All Sprinkler Heads and Blow-Out fittings