

Drinking Water Tech Tips

Troubleshooting Bladder Pressure Tanks

What is a bladder pressure tank?

It is a type of tank containing pressurized air and water separated by a membrane (bladder) and pre-charged with air at the factory. On average, a bladder pressure tank lasts 5–7 years.

Please refer to [Pressure Relief Valves on Pressure Tanks \(331-429\)](#), a one-page illustrated tech tip. It explains design requirements, how pressure relief valves protect pressure tanks, and how to ensure pressure relief valves are approved and installed properly.

How do bladder pressure tanks work?

As water pressure changes, the volume of air in a bladder pressure tank contracts or expands. Periodically, the amount of air in the tank should be measured and the tank recharged if the air is too low. Bladder pressure tanks do not provide any actual useful water storage capacity.

What functions do bladder pressure tanks serve?

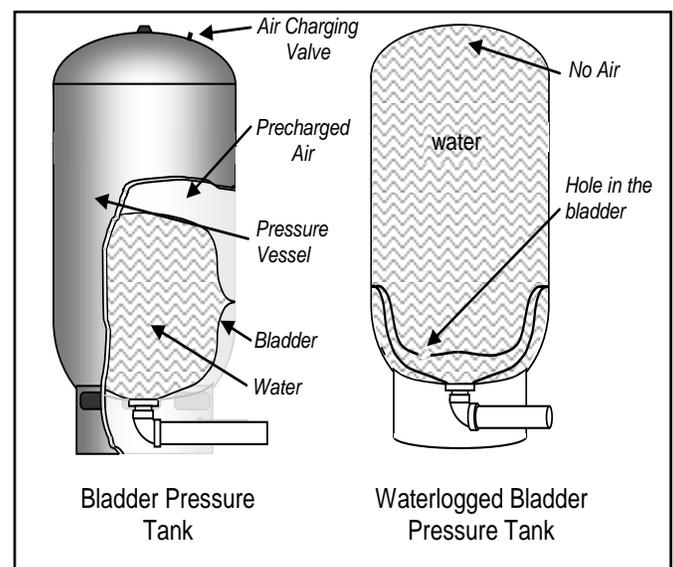
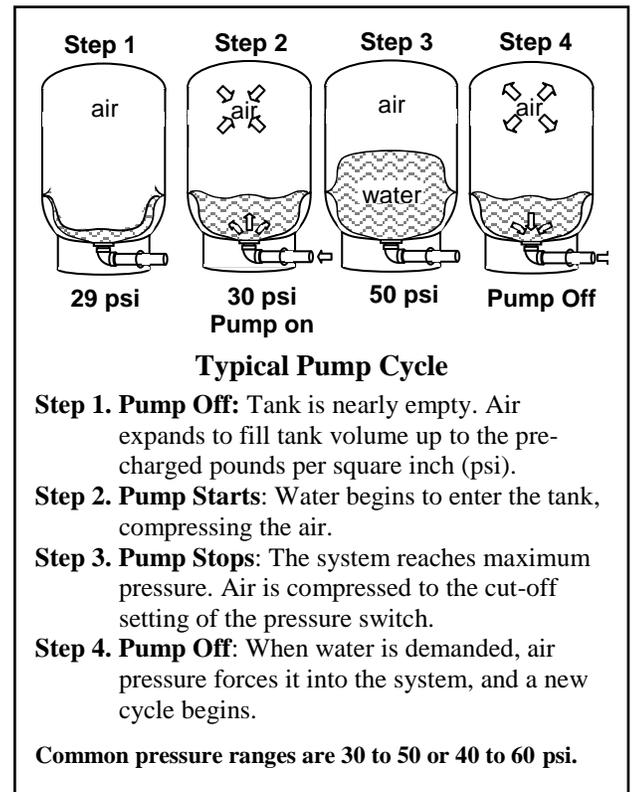
- Maintain a desired range of water pressure in the distribution system.
- Minimize pump cycling. Frequent starts and stops can damage facilities.
- Protect against water hammer.

Troubleshooting Guide

Check for waterlogged bladder pressure tank problems

- When the internal bladder fails and water fills the air space around the bladder inside the tank, the tank is waterlogged. You should replace waterlogged tanks.
- Gently tipping the tank may identify a waterlogged tank by weight.
- The pump motor cycles on/off rapidly.
- Listen. When you tap on the outside of the tank, it sounds different from those with a proper air-water balance.
- When you depress the central pin of the air-charging valve, water escapes through the charging valve.
- Stale, rusty water appears at the tap due to corrosion inside the tank.

 **Helpful hint!** It is often most cost-efficient to replace a waterlogged tank.



Check the air charge inside the bladder pressure tank

Air may escape from the bladder tank, just as it does from a bicycle or car tire. Loss of air inside the tank will result in over-expansion of the bladder, leading to premature bladder failure. Loss of air will lead to excessive pump cycling, which may shorten the life of the well pump motor. Follow the manufacturer's instructions if you have the technical ability to do so safely; otherwise, hire a professional to evaluate your pressure tank.

 **Helpful hint!** Take safety seriously and don't exceed your experience or knowledge.

Adjust the air pressure in the bladder pressure tank

Read and follow the manufacturer's safety warnings when working with bladder pressure tanks. Respect your limits. Contact a professional if you need help or feel uncertain about working conditions. Tank condition, air compressor and pressure gauge accuracy, the location and condition of pressure relief valves, and other factors may create a hazardous environment to perform the functions needed to adjust air pressure.

Avoid depressurizing your water system. Depressurizing the water system creates a high risk for backflow and contamination of the distribution system. Contact your regional office before depressurizing your water system as part of adjusting air pressure or performing other maintenance on your bladder pressure tank(s).

Typical manufacturer's instructions include these steps when checking and adjusting the air pressure in a bladder pressure tank:

1. Turn the power to the pump off or isolate the pressure tank from the rest of the system.
2. Open a faucet to drain the tank completely.
3. Check the air pressure at the air valve on the top of the tank with a pressure gauge.
4. The air pressure should be 2 psi below the start pressure setting of the pump.
5. Use an air compressor to charge the tank to the proper pressure. **DO NOT OVER PRESSURIZE!**
6. Close the faucet.
7. Turn power back on or open the isolation valve and refill the tank.
8. Check that the pump is turning on/off at the proper pressures using system pressure gauges.

For more information

We offer many publications online at <http://doh.wa.gov/odwpubs/>.

Contact our nearest regional office from 8 a.m. to 5 p.m. Monday through Friday. If you have an after-hours emergency, call 877-481-4901.

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