

## The bladder tank "size"

When you buy a bladder tank, some folks (like me) will tell you that it is equal in size to a galvanized tank. Why do we do that, you ask? The reason is simple. When you install a galvanized tank, let's use a 42-gallon. It will be completely empty when you first start the pump. The entire inside of the tank will be full of air. When water fills the tank, the air in that tank is compressed into the top 25 percent or so of that tank. That air now acts like a spring. When you open a faucet, the spring (air) pushes water out of the tank at the same pressure that reads on your gauge. Now, since you started filling the tank at zero pressure when the pump first started and you now have a pressure switch that is going to turn the pump on at a pre set pressure of "say" 30 pounds, the tank is not going to empty. The tank will only be about 1/3 empty. What happens to the rest of the water? It stays in there. Now you shut off the faucet, the pump runs the pressure back to "say" 50 pounds and shuts off at 100% full. The actual amount of water that was taken out and put back during this cycle was 6.2 gallons.

Let's do the same thing with the 42-gallon equivalent bladder tank. You install it on the system. The bladder is at the bottom. The entire tank is pre-charged to 28 lbs. The pump is turned on. The tank does not take in any water until the pump exceeds the 28 lbs. At 28 lbs the tank's bladder takes in water to the tune of 6.2 gallons and the pump shuts off at 50 lbs. Open a faucet, the compressed air (spring) now pushes water out of the bladder at the pressure reading on your gauge until the pump gets to 30 lbs. At this point the pump starts up and starts refilling the bladder just before it is completely empty, giving you 6.2 gallons of water. If for some reason your pump did not start at 30 lbs, the tank would keep emptying until it gets down to 28 lbs, at which time there would be no more water or system pressure. Just air pressure, trapped above the bladder.

That's why we express bladder tanks in size's equivalent to galvanized tanks!



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