

Technical Communications

Republished from BrewingTechniques' May/June 1993.

Dispensing from Kegs

One of the sessions at last year's American Homebrewers Association conference (June, 1992; Milwaukee, Wisconsin) was presented by Dave Miller, noted home brewer and now brewmaster at The Saint Louis Brewery. His talk focused on proper dispensing pressures for draft systems. The major revelation came when he handed out a table that specified pressure drops in lines with various internal diameters (i.d.). The tables showed that 1/4-in. i.d. PVC tubing that most of us use has a pressure drop of about 1 psi/ft. This means that an average draft system that uses 4 ft of PVC line will have about 4 psi drop in pressure. If we assume you want to maintain your draft beer at about 2.5 volumes of gas pressure (about medium carbonation), this would amount to about 12 psi on your regulator at 40 degrees F (4 degrees C); 12 psi at 40 degrees F = 2.5 volumes (1). If you now subtract the 4-psi drop in line resistance, your beer is being dispensed at 8 psi, which will make for great head and no gas in your hand-crafted product.

There is a solution to this paradox. If you use 3/16-in. i.d. PVC line, which has a pressure drop of 3 psi/ft, you can get a 12-psi pressure drop across the liquid line. Now you can dispense your beer and maintain it at 12 psi, and by using a 4-ft liquid line (3 psi X 4 ft = 12) you will get close to a 0-psi pressure at the tap. I switched all of my draft lines to 4 ft of 3/16-in. i.d. PVC line and now maintain and dispense all my beers at about 12 psi. I have never been happier with my draft system!

I know some of you release the pressure on your kegs before dispensing. This will work, but it is a real pain for multitap draft systems, and why do something you don't have to? Give this 3/16-in. line a try. You'll like it.

One important note: Your regulator gauge may not read the pressure your kegs are really at because of the pressure drop across check valves that may (should) be in your carbon dioxide lines. Installing a check valve at each carbon dioxide outlet prevents cross pressurization and contamination. I have seen about 2 psi pressure drop across each check valve. I have one at the regulator output and one at each output from my

gas manifold (see Figure 1). This means that I must set my regulator to 16 psi to get 12 psi at my kegs ($16 \text{ psi} - 4 \text{ psi} = 12 \text{ psi}$). Your systems may vary. Also, getting the 3/16-in. i.d. line onto the standard 1/4-in. barb is a bit difficult. I heated mine up in hot water and then quickly pushed them on.

Good luck and better dispensing!

--Bob Jones
Alamo, California

Reference

(1) Values obtained from gas saturation tables, Beer & Brewing, Vol. 12 (Brewers Publications, Boulder, Colorado, 1992).