



## **Balancing Your Keg System with CO2**

Draft problems are usually very simple and easily fixed when you understand the facts. The advice below will give you most of the information you need to solve most of your draft issues.

Different beers will like to sit at different pressure. All beers like to sit in static state under a certain "Target" pressure. Each beer will have a slightly different carbonation level and therefore a slightly different "Target" pressure. Generally speaking most beers like to sit in the keg at between 83kPa (12psi) to 97kPa (14psi) at 2 degree C. The issue is that at this pressure, your flow speed might be too fast or too slow. That is why you need to increase or decrease your beer line length and diameter so you can maintain the correct pouring speed and target pressure. Please refer to the table below which outlines target pressure concept.

### Target Pressure

Different beers will vary from the figures in this table, but this is a fairly accurate guide for most draft beers. You will notice from the table below that the target pressure increases as the temperature increases. This is one of the reasons why you want to try to keep your kegs in an environment that has a constant temperature. Inside a cool room or fridge is a great way to go.

#### Target CO2 Pressure Settings For Various Keg Temperatures

Ideal Applied Pressure at the Regulator's Gauge

1°C - 90 kPa (13psi)

2°C - 97 kPa (14psi)

3°C - 103 kPa (15psi)

4°C - 110 kPa (16psi)

5°C - 117 kPa (17psi)

6°C+ - Beer can spoil at this temperature. Keep below ensuring beer freshness and carbonation.

### Balancing Your System by Beer Line Length and Internal Diameter

Balancing your system is all about putting the correct amount of resistance on your system so that you can maintain the target pressure while having the beer pour at the correct speed. If your system is below your target pressure your beer will eventually become flat, if your beer is above the target pressure your beer will slowly increase in carbonation and you will end up with an over-carbonated beer which will produce a lot of head.

Balancing your system is particularly important for systems where you are turning over your kegs slowly. In a fast moving pub or hotel it is less of an issue because the keg will be dispensed so quickly it doesn't have enough time to go flat or get over-carbonated. On the flip side, if you are using kegs at home and your keg is slowly being dispensed over a number of weeks or months, it's even more important that your system is perfectly balanced. This is done by altering the flow resistance. Flow resistance can be altered a number of different ways:

1. Increase/decrease the height of the keg in relation to the tap
2. Change the type of beer line. (Plastic, stainless, or other)
3. Use a flow restrictor tap (this will give you a small amount of control and should really be just used for fine adjustments.
4. Change the number of joiners, connections, splicer's in your beer line. (This will only have a small effect and should be used for fine tuning only)
5. Change the internal diameter of the beer line
6. Change the length of the beer line

Clearly changing the height of the keg can be difficult or impractical. Flow restrictor taps will only give you a small amount of control for fine tuning, so basically the best option is to change the internal diameter or length of the beer line.

Increasing the length will obviously increase the resistance of beer to the tap (slowing the beer flow rate down). Also, decreasing the beer line diameter will also increase the resistance of beer to the tap (slowing the beer flow rate down). So for you to decide the correct beer line length and diameter you should refer to the table below.

Purpose	Internal Diameter	Recommended Beer Line Length (Thick wall PVC)
4mm (approx 5/32")	Under 2m	Length
Used in situations where keg is right next to the font or tap. Kegerators or very small keg systems		
5mm (approx 3/16")	2-3m	
For use in small bar situation or for Kegerator setup		
6mm (approx 1/4")	3-7m	
For use in small to medium bar setup with relatively short beer lines		
8mm (approx 5/16")	over	7-16m
Used for medium to long draw beer lines, jockey box, or large temperte system		
9.5mm (approx 3/8")	15-30m	
Used for long draw beer lines, jockey box, or large temperte system		

