

Draught Equipment Hardware (DEH)

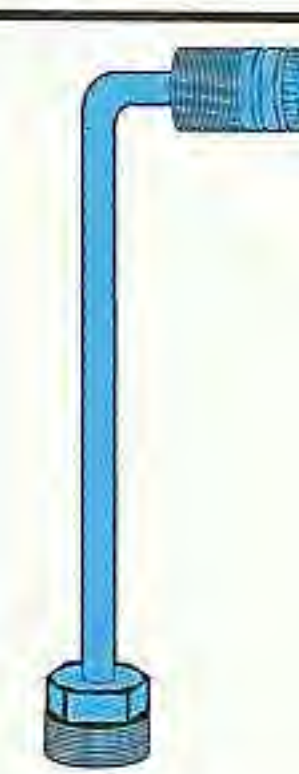
A draught beer system consists of numerous pieces of hardware that the beer comes in contact with as it flows through the system. The restrictive values of each has been measured. Most contain very little restriction while one, the Shank & Bent Tube, has a considerable amount.

Gravity

Gravity is considered in terms of **Vertical Rise (VR)** or **Vertical Fall (VF)** of a draught beer system. It is measured between two horizontal planes: the bottom of the keg (due to the downtube), and the

faucet. Normally, for each foot of gravity there is a restrictive value of .45 PSI. For ease of calculation, .50 PSI will always be used. While calculating restriction, VR is subtracted, and VF is added.

Part Description	PSI's of Resistance
Shank and Bent Tube Assembly	3.0 lbs. (✓)
Convenience Tap Assembly	0.5 lbs.
Straight Shank	N/A
Tube Elbow	N/A
All Other Metal Parts (faucets, etc.)	N/A



There may or may not be a **shank and bent tube** in every draught beer system.. It is critical to know what DEH is present in the system.

$$\begin{aligned} \text{Gravity} &= 10 \text{ ft. of VR} \\ &\times .50 \text{ lbs. per ft.} \\ &= 5.0 \text{ lbs. (VR)} \end{aligned}$$

The system illustrated on the right has 5.0# of Vertical Rise, which must be subtracted during restriction calculations.

Beer Line

Every foot of beer line has a restriction value. The smaller the line's inside diameter, the higher the restriction value it has. The larger the inside diameter, the lower the restriction value it has. Refer to the chart to the right for beer line restriction values:

Beer Line Restriction Chart - Vinyl / Barrier Values					
Inner Diameter (ID) of Beer Line	Restriction per foot of Beer Line		Liquid Contents per foot of Beer Line		
	Vinyl	Barrier			
3/16" ID	2.2 lbs.	2.2 lbs.	1/5-oz./foot		
1/4" ID	.6 lbs.	.4 lbs.	1/3-oz./foot		
5/16" ID	.2 lbs.	.15 lbs.	1/2-oz./foot		
3/8" ID	.1 lbs.	.06 lbs.	3/4-oz./foot		
1/2" ID	.025 lbs.	N/A	1- 1/3-oz./foot		

The system on the next page utilizes two different line sizes. This will be reviewed later in more detail. From the above chart, the total restriction value with regards to beer line for this system is calculated as follows:

$$\begin{aligned} \text{Trunkline (Vinyl) ID} &= 5/16" @ .2 \text{ lbs./ft.} \times 31.5' = 6.3 \text{ lbs.} \\ \text{Choker Line ID} &= 3/16" @ 2.2 \text{ lbs./ft.} \times 3.5' = 7.7 \text{ lbs.} \\ \text{Total vinyl beer line restriction} &= 14 \text{ lbs.} \end{aligned}$$