MICRO MATIC Guide to Keg Filling

It is commonly recognized that bottles and cans of beer require headspace. Otherwise they'd be popping caps or blowing up on the shelf with some regularity. It is important to understand that while kegs are significantly stronger than cans or bottles in many ways, they are no match for thermal expansion and the power of hydraulic force .

You can see in the chart on page 3, a ½ bbl of beer filled at 4° C will increase its volume by about 200 ml by the time it reaches 20° C and almost 450 ml by the time it reaches 40° C. This liquid has to go somewhere and if there isn't a cushion of headspace, the result will be damage to the valve (see below) or the keg (page 2), and leakage of beer. Damage to valves can range from the mild rippling seen on the left to more extreme examples center and right.

Page 4 offers some best practices for filling your kegs.

Damage to keg shell

Split keg

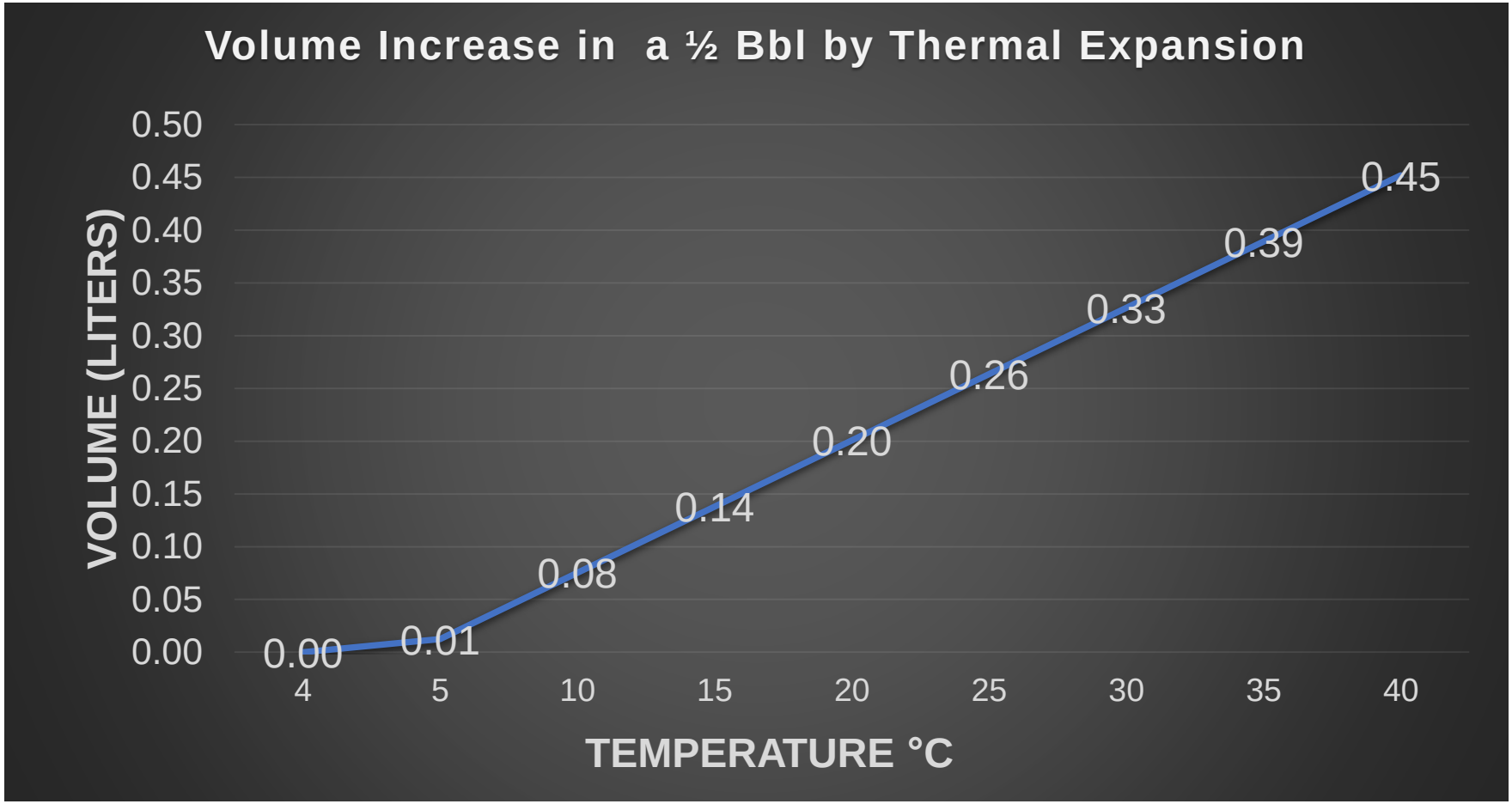
Expanded bottom dome

Expanded top dome

Note that keg neck sits higher than chime

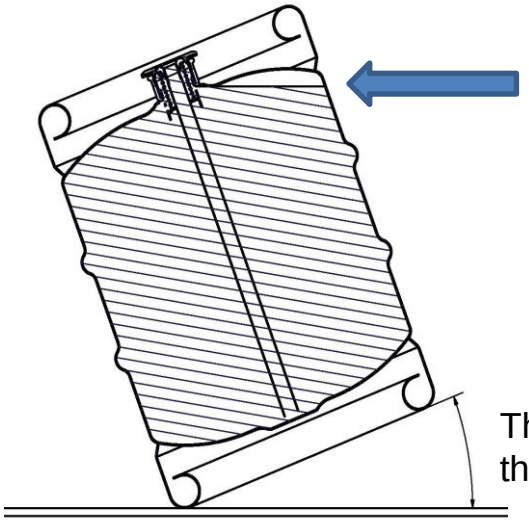
A ½ Bbl keg filled at 4°C will increase in volume by 140 ml at 15° C, 200 ml at 20° C and 450 ml by 40° C.

Without proper headspace, the extra beer volume has nowhere to go, and pressures inside the keg can reach **and significantly exceed** 10 bar in ½ bbls and over 13 bar in sixth bbls.



Best Practices for filling kegs

- Thermal Expansion of Liquid = hydraulic pressure
  Leave head space! *Your kegs are designed to hold full specified volume of beer plus head space.*
  - **Best method**: fill by metered volume or by weight
  - **Second best method**: fill upright to overflow through coupler with keg propped on an angle



Fill to here!

Typical Head space:
20L = .4L
30L = .6L
50L = .8L
½ bbl = 1.0L

This angle will need to be calculated for different kegs to determine the correct fill volume, but is likely to fall in a range of 60-70 degrees

- **Worst method**: fill upright, flat on the floor (valve end up) to overflow from coupler resulting in keg that is 100% filled with beer – over-filled