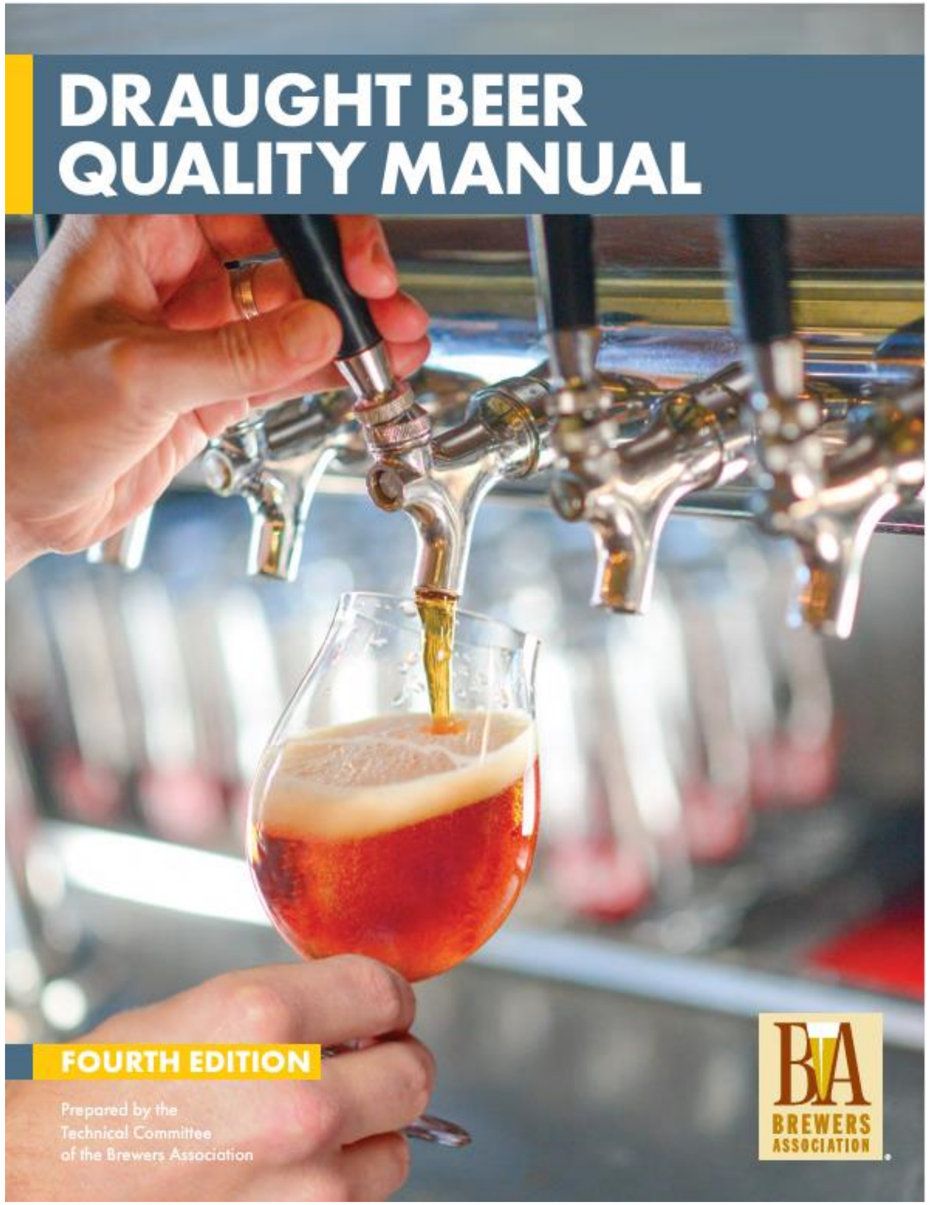
Draught Systems: From Design to Dispense

Jack Van Paepeghem – von Trapp Brewing

About Me

- 2011 - Washington, D.C. Beer bar – Line cleaner
- 2013 - Siebel Institute/Doemens Academy – International Diploma in Brewing Technology Advanced Cicerone
- Oxbow – Draft system field technician
- Bar Manager/Beer Buyer
- Von Trapp – Oversees draft quality on property – 60+ lines
- Brewers Association Draft Beer Quality Subcommittee



DRAUGHT BEER QUALITY MANUAL

Why care about draught systems?

- Deliver cold, fresh beer to customers
- Reduce packaging waste
- Increase profit/revenue
- Increase sales volume
- Presentation – ability to perform different pour techniques

What will we cover?

- Draught system design, configurations and considerations
- Cleaning, maintenance, and troubleshooting of various systems
- Best practices for pouring and presentation of draught beer

Draught System Design, Configurations, and Considerations

So you want to install a draught system?

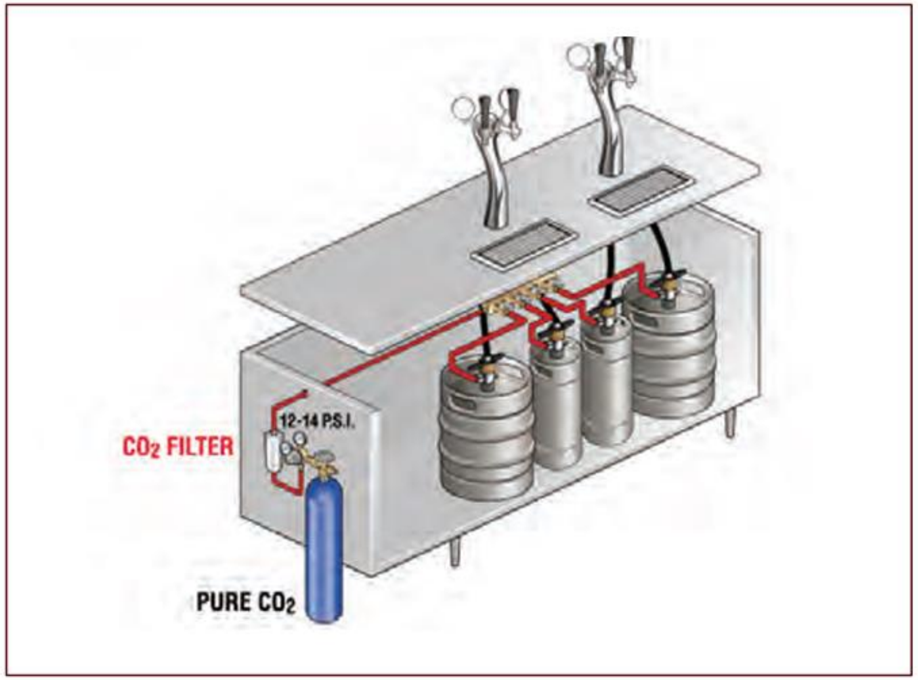
- Where will your keg cooler be in relation to your taps?
- How many draught lines will you have?
- Will each line serve multiple dispense outlets or towers?
- Do you plan to run beers with different levels of CO2?
- Will you serve every beer at the same temperature or have style specific coolers?
- Should you plan on using blended gas or beer pumps?
- Who is going to clean it?
- How much waste should you anticipate for cleaning cycles?

Keep it as simple and short as possible!

- The best beer is the beer closest to the keg that has to travel the least amount of distance through the minimal amount of components
- Use the smallest Interior Diameter (ID) as possible, this reduces the volume of beer that comes into contact with draught lines

Keep it as simple and short as possible!

Direct Draw - Kegerator



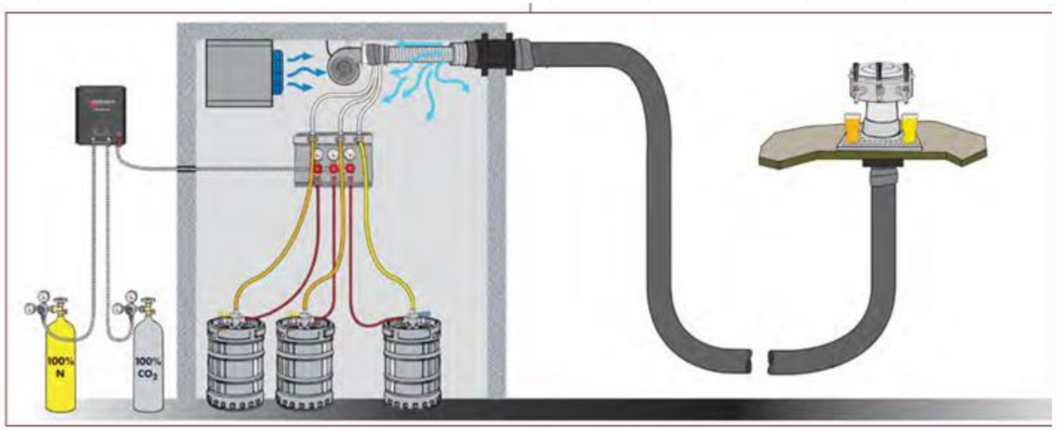
Direct Draw – Keg Cooler through wall

Keep it as simple and short as possible!

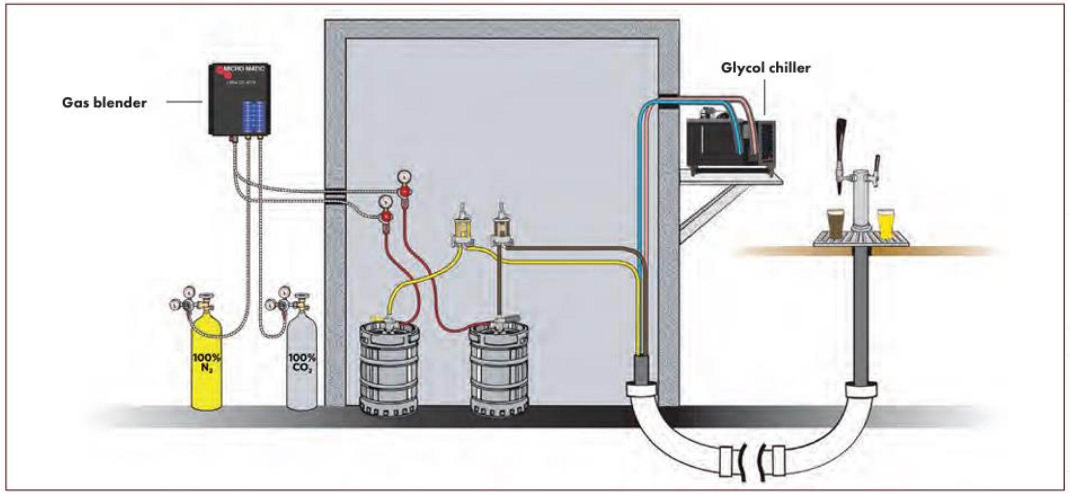
- Pros
  - Reduces waste
  - Easy to replace lines
  - Minimal/no foaming if balanced and kept at proper temperature
  - No need for gas blending
  - No need for FOB detectors
- Cons
  - Keg storage constraints
  - Limited # of taps for kegerators
  - CO_2 requirements – may require secondary regulators for different styles

Long Draw / Remote Systems

Air Cooled



Glycol Cooled



Air-Cooled Long Draw

- Pros
  - Cheaper than glycol system
  - Single duct vs. Double duct – ways to manage air flow
- Cons
  - Requires high amount of insulation
  - Subject to cooler temperature
  - Susceptible to temperature fluctuations of path
  - Limited at about 25 feet
- In general – not recommended

Glycol-cooled Long Draw

- Pros
  - Highly effective at keeping beer cool
  - Can handle 100+ foot runs
- Cons
  - Expensive $$$ upfront costs
  - Requires maintenance, upkeep, monitoring glycol level
  - Susceptible to temperature fluctuations if not properly insulated
- In general – always recommended over air-cooled

Figure 4.21. Glycol chiller.

Gas Principles

- Goals
  - Maintain original carbonation of keg at point of dispense
  - Maintain flow rate of 2oz/second, or 1 gallon/minute
  - 1 Pint = 6-8 seconds
- Balance = Applied Pressure + Resistance
  - Applied Pressure = Lbs CO_2 or other gas pushing beer to faucet
  - Resistance
    - Static Resistance = Gravity – Add 1# for every 2 feet of elevation gained, opposite for below
    - Dynamic Resistance = Contributed through hose type/ID, other components

Gas Principles

	Volumes of CO_2										
Temp. (°F)	**2.1**	**2.2**	**2.3**	**2.4**	**2.5**	**2.6**	**2.7**	**2.8**	**2.9**	**3.0**	**3.1**
33	5.0	6.0	6.9	7.9	8.8	9.8	10.7	11.7	12.6	13.6	14.5
34	5.2	6.2	7.2	8.1	9.1	10.1	11.1	12.0	13.0	14.0	15.0
35	5.6	6.6	7.6	8.6	9.7	10.7	11.7	12.7	13.7	14.8	15.8
36	6.1	7.1	8.2	9.2	10.2	11.3	12.3	13.4	14.4	15.5	16.5
37	6.6	7.6	8.7	9.8	10.8	11.9	12.9	14.0	15.1	16.1	17.2
38	7.0	8.1	9.2	10.3	11.3	12.4	13.5	14.5	15.6	16.7	17.8
39	7.6	8.7	9.8	10.8	11.9	13.0	14.1	15.2	16.3	17.4	18.5
40	8.0	9.1	10.2	11.3	12.4	13.5	14.6	15.7	16.8	17.9	19.0
41	8.3	9.4	10.6	11.7	12.8	13.9	15.1	16.2	17.3	18.4	19.5
42	8.8	9.9	11.0	12.2	13.3	14.4	15.6	16.7	17.8	19.0	20.1

Source: Data from *Methods of Analysis*, 5th ed., (Milwaukee, WI: American Society of Brewing Chemists, 1949).

Notes: Values assume sea-level altitude, beer specific gravity of 1.015, and beer alcohol content at 3.8% ABW or 4.8% ABV. Values shown are in psig, or gauge pressure.

It is important to remember that carbonation is proportional to absolute pressure, not gauge pressure. Atmospheric pressure drops as elevation goes up. Therefore, the gauge pressure needed to achieve proper carbonation at elevations above sea level must be increased. Add 1 psig for every 2000 ft. above sea level. For example, a retailer at sea level would use 11.3 psig to maintain 2.5 volumes CO_2 in beer served at 38°F. That same retailer at 4000 ft. above sea level would need 13.3 psig to maintain 2.5 volumes CO_2.

Gas Principles

	Volumes of CO_2										
Temp. (°F)	**2.1**	**2.2**	**2.3**	**2.4**	**2.5**	**2.6**	**2.7**	**2.8**	**2.9**	**3.0**	**3.1**
33	5.0	6.0	6.9	7.9	8.8	9.8	10.7	11.7	12.6	13.6	14.5
34	5.2	6.2	7.2	8.1	9.1	10.1	11.1	12.0	13.0	14.0	15.0
35	5.6	6.6	7.6	8.6	9.7	10.7	11.7	12.7	13.7	14.8	15.8
36	6.1	7.1	8.2	9.2	10.2	11.3	12.3	13.4	14.4	15.5	16.5
37	6.6	7.6	8.7	9.8	10.8	11.9	12.9	14.0	15.1	16.1	17.2
38	7.0	8.1	9.2	10.3	11.3	12.4	13.5	14.5	15.6	16.7	17.8
39	7.6	8.7	9.8	10.8	11.9	13.0	14.1	15.2	16.3	17.4	18.5
40	8.0	9.1	10.2	11.3	12.4	13.5	14.6	15.7	16.8	17.9	19.0
41	8.3	9.4	10.6	11.7	12.8	13.9	15.1	16.2	17.3	18.4	19.5
42	8.8	9.9	11.0	12.2	13.3	14.4	15.6	16.7	17.8	19.0	20.1

Source: Data from *Methods of Analysis*, 5th ed., (Milwaukee, WI: American Society of Brewing Chemists, 1949).

Notes: Values assume sea-level altitude, beer specific gravity of 1.015, and beer alcohol content at 3.8% ABW or 4.8% ABV. Values shown are in psig, or gauge pressure.

It is important to remember that carbonation is proportional to absolute pressure, not gauge pressure. Atmospheric pressure drops as elevation goes up. Therefore, the gauge pressure needed to achieve proper carbonation at elevations above sea level must be increased. Add 1 psig for every 2000 ft. above sea level. For example, a retailer at sea level would use 11.3 psig to maintain 2.5 volumes CO_2 in beer served at 38°F. That same retailer at 4000 ft. above sea level would need 13.3 psig to maintain 2.5 volumes CO_2.

Gas Principles

	Volumes of CO_2										
Temp. (°F)	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1
33	5.0	6.0	6.9	7.9	8.8	9.8	10.7	11.7	12.6	13.6	14.5
34	5.2	6.2	7.2	8.1	9.1	10.1	11.1	12.0	13.0	14.0	15.0
35	5.6	6.6	7.6	8.6	9.7	10.7	11.7	12.7	13.7	14.8	15.8
36	6.1	7.1	8.2	9.2	10.2	11.3	12.3	13.4	14.4	15.5	16.5
37	6.6	7.6	8.7	9.8	10.8	11.9	12.9	14.0	15.1	16.1	17.2
38	7.0	8.1	9.2	10.3	11.3	12.4	13.5	14.5	15.6	16.7	17.8
39	7.6	8.7	9.8	10.8	11.9	13.0	14.1	15.2	16.3	17.4	18.5
40	8.0	9.1	10.2	11.3	12.4	13.5	14.6	15.7	16.8	17.9	19.0
41	8.3	9.4	10.6	11.7	12.8	13.9	15.1	16.2	17.3	18.4	19.5
42	8.8	9.9	11.0	12.2	13.3	14.4	15.6	16.7	17.8	19.0	20.1

Source: Data from *Methods of Analysis*, 5th ed., (Milwaukee, WI: American Society of Brewing Chemists, 1949).

Notes: Values assume sea-level altitude, beer specific gravity of 1.015, and beer alcohol content at 3.8% ABW or 4.8% ABV. Values shown are in psig, or gauge pressure.

It is important to remember that carbonation is proportional to absolute pressure, not gauge pressure. Atmospheric pressure drops as elevation goes up. Therefore, the gauge pressure needed to achieve proper carbonation at elevations above sea level must be increased. Add 1 psig for every 2000 ft. above sea level. For example, a retailer at sea level would use 11.3 psig to maintain 2.5 volumes CO_2 in beer served at 38°F. That same retailer at 4000 ft. above sea level would need 13.3 psig to maintain 2.5 volumes CO_2.

Gas Principles

	Volumes of CO_2										
Temp. (°F)	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1
33	5.0	6.0	6.9	7.9	8.8	9.8	10.7	11.7	12.6	13.6	14.5
34	5.2	6.2	7.2	8.1	9.1	10.1	11.1	12.0	13.0	14.0	15.0
35	5.6	6.6	7.6	8.6	9.7	10.7	11.7	12.7	13.7	14.8	15.8
36	6.1	7.1	8.2	9.2	10.2	11.3	12.3	13.4	14.4	15.5	16.5
37	6.6	7.6	8.7	9.8	10.8	11.9	12.9	14.0	15.1	16.1	17.2
38	7.0	8.1	9.2	10.3	11.3	12.4	13.5	14.5	15.6	16.7	17.8
39	7.6	8.7	9.8	10.8	11.9	13.0	14.1	15.2	16.3	17.4	18.5
40	8.0	9.1	10.2	11.3	12.4	13.5	14.6	15.7	16.8	17.9	19.0
41	8.3	9.4	10.6	11.7	12.8	13.9	15.1	16.2	17.3	18.4	19.5
42	8.8	9.9	11.0	12.2	13.3	14.4	15.6	16.7	17.8	19.0	20.1

Source: Data from *Methods of Analysis*, 5th ed., (Milwaukee, WI: American Society of Brewing Chemists, 1949).

Notes: Values assume sea-level altitude, beer specific gravity of 1.015, and beer alcohol content at 3.8% ABW or 4.8% ABV. Values shown are in psig, or gauge pressure.

It is important to remember that carbonation is proportional to absolute pressure, not gauge pressure. Atmospheric pressure drops as elevation goes up. Therefore, the gauge pressure needed to achieve proper carbonation at elevations above sea level must be increased. Add 1 psig for every 2000 ft. above sea level. For example, a retailer at sea level would use 11.3 psig to maintain 2.5 volumes CO_2 in beer served at 38°F. That same retailer at 4000 ft. above sea level would need 13.3 psig to maintain 2.5 volumes CO_2.

Gas Principles – Gas type

100% CO2

Blended Gas

TABLE 4.2. PERCENTAGE CO_2 FOR GAS BLENDS USED ON REGULARLY CARBONATED BEERS

	Storage temp.	
	35–37°F	**38–40°F**
Applied pressure	**Median 2.5 volumes CO_2**	
16–20 psi	75–80%	80–85%
20–25 psi	65%	70%
Applied pressure	**Median 2.7 volumes CO_2**	
16–20 psi	80–85%	80–90%
20–25 psi	70%	75%

Gas Principles – Dynamic Resistance

Hose/Tube ID and restriction

TABLE 4.1. COMMON MATERIALS AND DIAMETERS USED FOR BEER LINE AND THEIR DYNAMIC RESISTANCE VALUES

Type	Size	Resistance (lb./ft.)*	Volume (fl. oz./ft.)
Vinyl/flexible	3⁄16" ID	3.00	⅙
Vinyl/flexible	¼" ID	0.85	⅓
Vinyl/flexible	5⁄16" ID	0.40	½
Vinyl/flexible	⅜" ID	0.20	¾
Vinyl/flexible	½" ID	0.025	1⅓
Barrier	¼" ID	0.30	⅓
Barrier	5⁄16" ID	0.10	½
Barrier	⅜" ID	0.06	¾
Stainless	¼" OD	1.20	⅙
Stainless	5⁄16" OD	0.30	⅓
Stainless	⅜" OD	0.12	½

Stainless/Barrier is best - avoid vinyl choker lines

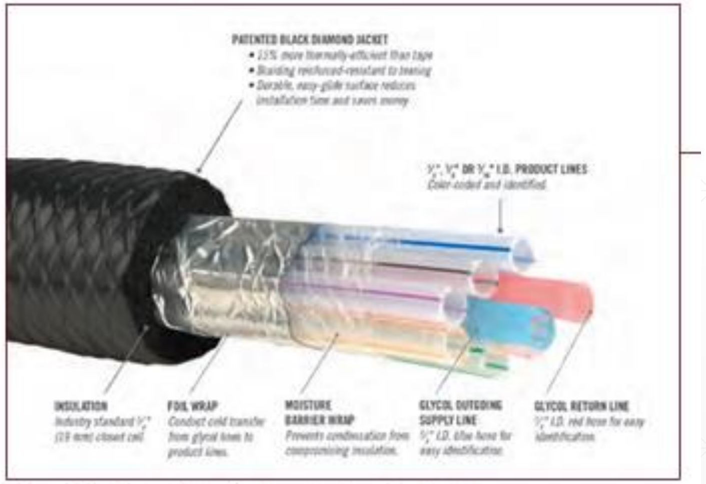


Figure 4.2. Cross-section of a long-draw beer line bundle.

Gas Principles – Formulas and Equations

See DBQM

EXAMPLE 1: LONG-DRAW, CLOSED-REMOTE SYSTEM

This example for a long-draw, closed-remote system assumes that the dispensing gas blend mixture is already fixed; there is a vertical lift of 12 feet; and the beer trunk line total run is 120 feet. Find the operating pressure of the system, and then determine the appropriate tubing size for the trunks and choker-line tubing length.

Beer Conditions

Beer temperature: 35°F
Beer carbonation: 2.6 volumes CO_2
Dispensing gas: 70% CO_2/30% N_2 blend

First, you must determine the gauge pressure of the blended gas required to maintain the correct level of carbonation. From Appendix C, this calculation is:

$$a = \left(\frac{b + 14.7}{c}\right) - 14.7$$

where a is the gauge pressure of the blended gas, b is the ideal gauge pressure of pure CO_2 for this situation (in this case, 10.7 psi; see table B.1 in appendix B), c is the proportion of CO_2 in the blended gas, and atmospheric pressure is assumed to be 14.7 psi (i.e., sea level).

$$a = \left(\frac{10.7 + 14.7}{0.70}\right) - 14.7$$

= (25.4/0.70) − 14.7
= 36.3 − 14.7
= 21.6 psi (round to 22 psi)

Static Resistance

Vertical lift (faucet height above center of keg): 12 ft.

Static resistance = 12 ft. × 0.5 lb./ft.
= 6.0 lb.

Balance

The applied dispensing gas pressure of 22 psi must be balanced by the total system resistance. Since the static resistance equals 6 lb., the system will need a total of 16 lb. of dynamic resistance to be imparted by the beer line restriction.

Dynamic resistance = dispensing gas pressure − static resistance
= 22 − 6
= 16 lb.

Beer Line Restriction

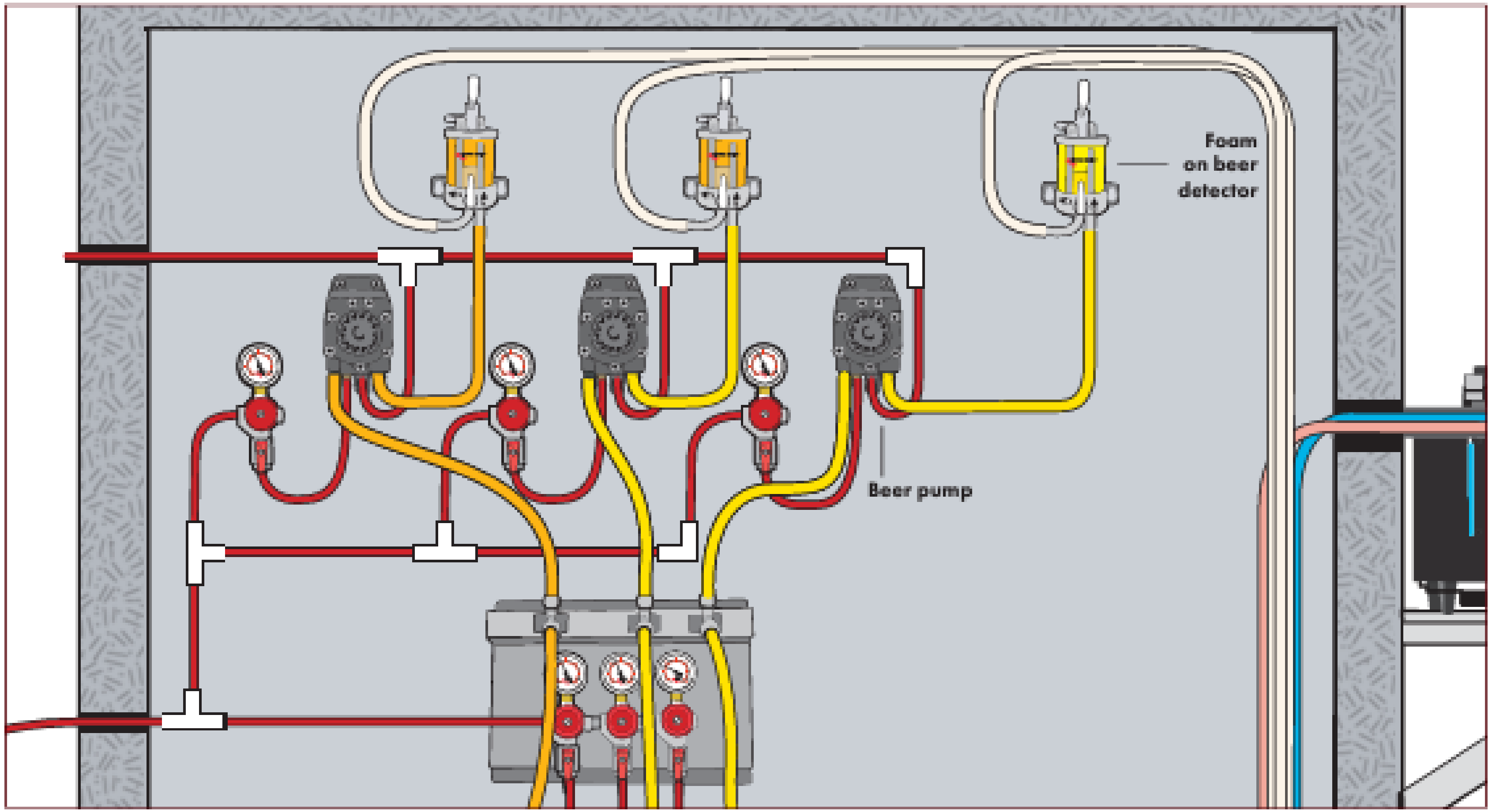
120 ft. of $^5/_{16}$" ID barrier tubing @ 0.1 lb./ft. (see table 4.1)
120 ft. × 0.1 lb./ft.= 12 lb.
1.3 ft. of $^3/_{16}$" ID vinyl choker line @ 3.0 lb./ft.
1.3 ft. × 3.0 lb./ft. = 4 lb.
Dynamic resistance from barrier tubing and choker line:
12 + 4 = 16 lb.

Other Long Draw Components

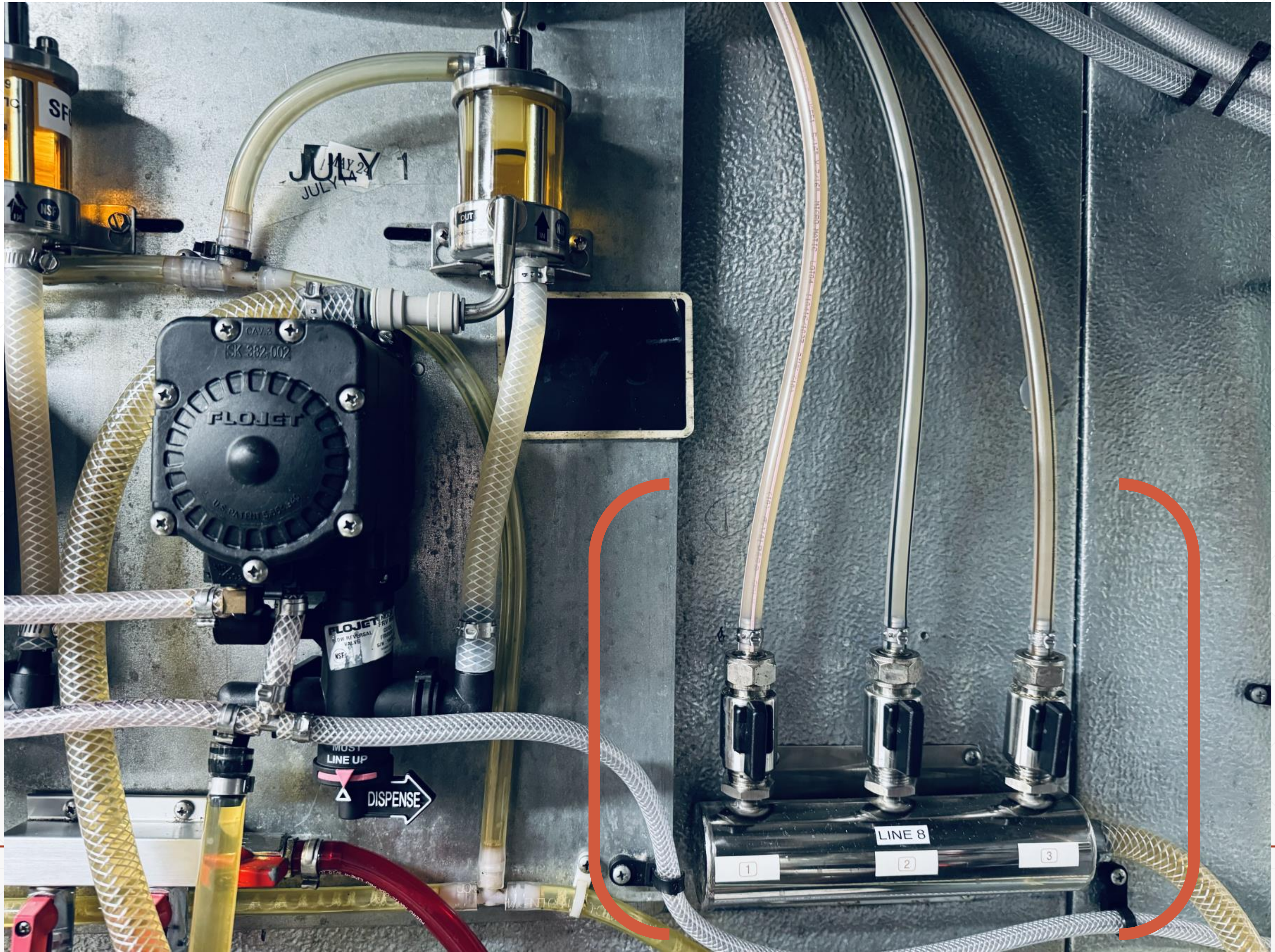
FOB (foam on beer) Detectors

Beer Pumps

Other Long Draw Components



Other Long Draw Components – Split Towers



Cleaning, Maintenance, and Troubleshooting

How does a clean draught system become “dirty?”

- Internal Factors Which Influence Biofilm Formation and Growth
  - Yeast settling in lines
  - Hop particulate settling
  - Beers w/ fruit and/or lactose on tap
  - Beer Stone – calcium oxylate
  - Beers with wild yeast/bacteria on tap
  - Slow moving product – stagnant in line

How does a clean draught system become “dirty?”

- External Factors Which Influence Biofilm Formation and Growth
  - General keg cooler hygiene
  - Presence of black/white mold
  - Food stored in keg cooler
  - Loose connections, worn components
  - Dirty coupler tapping “clean” kegs
  - Dirty CO2 lines
  - Dirty Faucets – work back through line

How does a clean draught system become “dirty?”

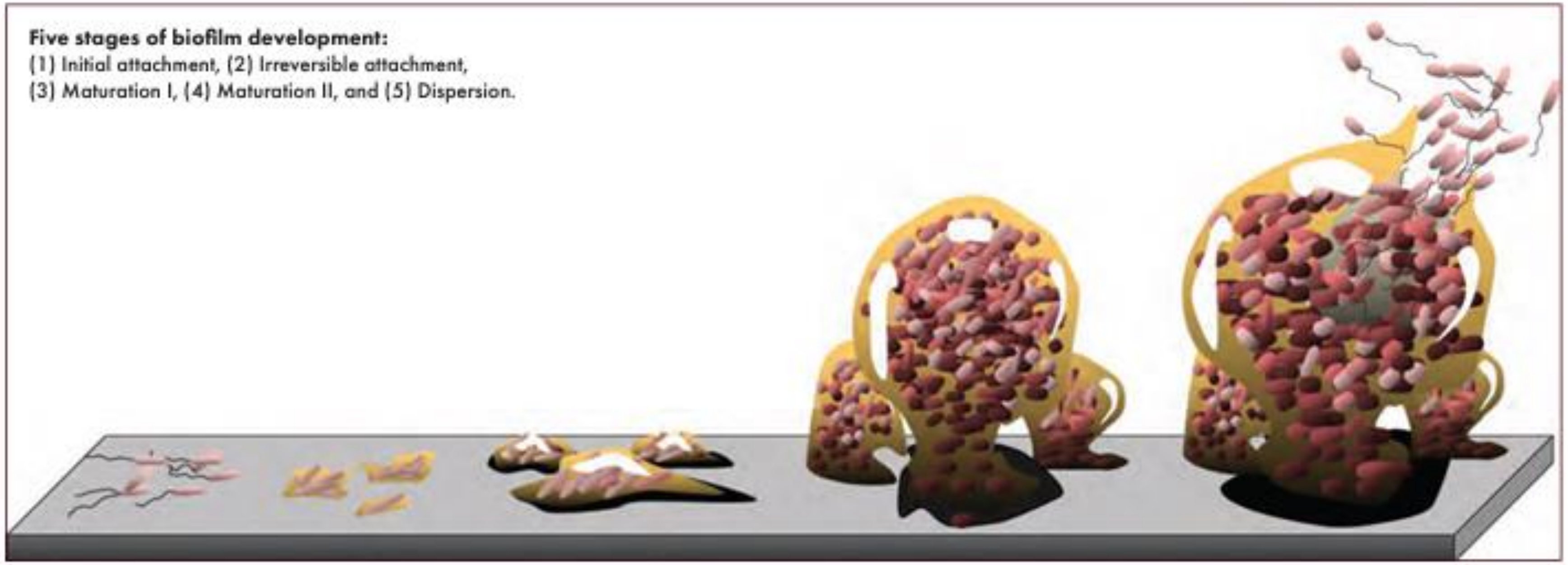
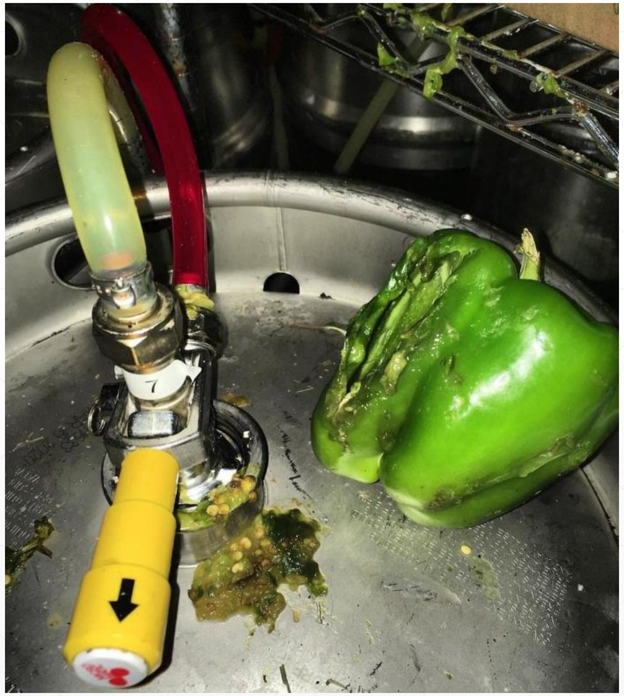


Figure 7.1. Biofilms can easily become established in dirty lines.
Creative Commons: D. Davis - From: D. Monroe. “Looking for Chinks in the Armor of Bacterial Biofilms”. *PLoS Biology* 5 (11, e307)
journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.0050307.

How does a clean draught system become “dirty?”

*Pictures courtesy of @moderndraught

How does a clean draught system become “dirty?”



*Pictures courtesy of @moderndraught

How does a clean draught system become “dirty?”

*Pictures courtesy of @moderndraught

Telltale signs for dirty lines

- Appearance
  - Turbidity in otherwise clear beers
  - Rapid foam deterioration (lactic acid bacteria breaking down proteins)
  - Excessive foaming – refermentation in lines or keg
- Aroma
  - Diacetyl – butter/butterscotch - lactic acid bacteria
  - Acetic acid – vinegar – acetobacter
  - Brettanomyces contaminations – band-aid, smoky, phenolic, fruity
- Taste/Mouthfeel
  - Sour – Acetic or lactic acid bacteria
  - “Slick” – diacetyl - LAB

System Cleaning Frequency

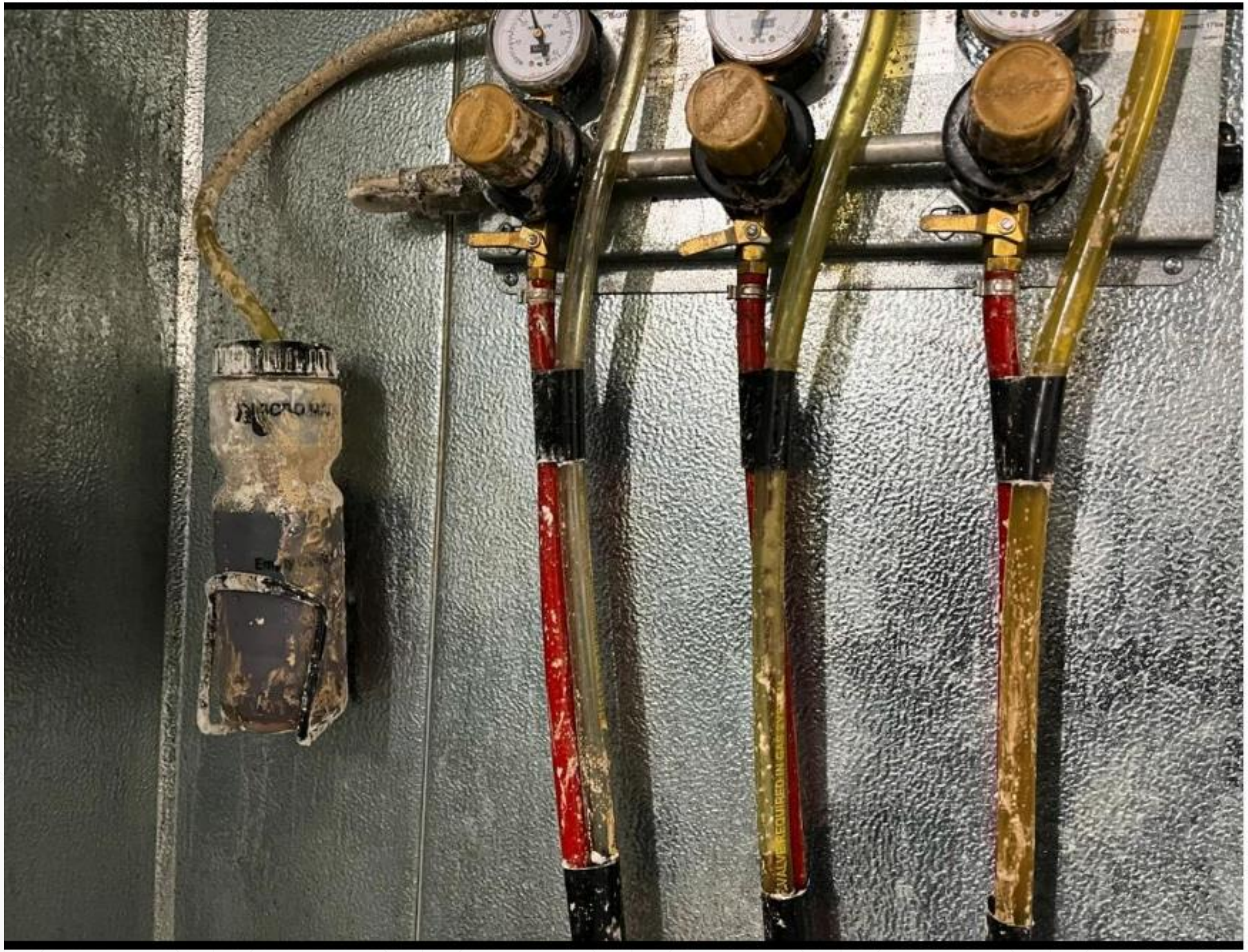
- Every 2 weeks - Caustic
  - Draught lines
  - Faucets
  - FOBs – in line
  - Couplers – exterior scrub/soak
- Every 3 months (quarterly) - Acid
  - Same components as above
  - Goal to remove beer stone
- Every 6 months (semi-annual)
  - FOBs – full breakdown/scrub/soak
  - Couplers – full breakdown/scrub/soak

System Cleaning Frequency

- Spot Cleaning
  - Hoppy beers → non hoppy
  - Smoked beer → anything else
  - Sour/brett beer → anything else
  - Fruit beers → anything else
  - Dark/roasty → anything lighter

"I swear I clean my lines every two weeks"

- The lines:



*Picture courtesy of @moderndraught

System Cleaning Frequency: Component replacement

- Vinyl Jumpers (< $1/ft)
  - Hoppy beers → non hoppy
  - Smoked beer → anything else
  - Sour/brett beer → anything else
  - Fruit beers → anything else
  - Dark/roasty → anything lighter
- Trunk Line/Barrier
  - Every 10 years or when needed
- Gas lines
  - Upon discoloration or leaking
- Brass
  - Always
- Faucet Components
  - Worn gaskets
  - Bent levers
- Coupler Components
  - Worn gaskets
  - Check ball

System Cleaning Methods

Cleaning Can/Static

Recirculating Pump

Cleaning Can/Static

Pros

- Cheap/relatively affordable
- More portable, less components
- Single tap systems, kegerators
- Relatively easy learning curve

Cons

- Less effective than recirculating
- CO_2 → Neutralizes Caustic effectiveness
- Faucet removal optional
- Longer time – 20 minutes

Cleaning Can Operations

Recirculating Pump

Pros

- More effective – up to 80% over cleaning can
- Agitation through circulation
- No CO2 neutralization
- Cleaner temp – can adjust while cleaning
- Requires faucet removal
- Less Time – 15 minutes

Cons

- Expensive (investment)
- More components - bulky
- Requires more training

Recirculating Pump Operations

Faucet Side

Cooler Side

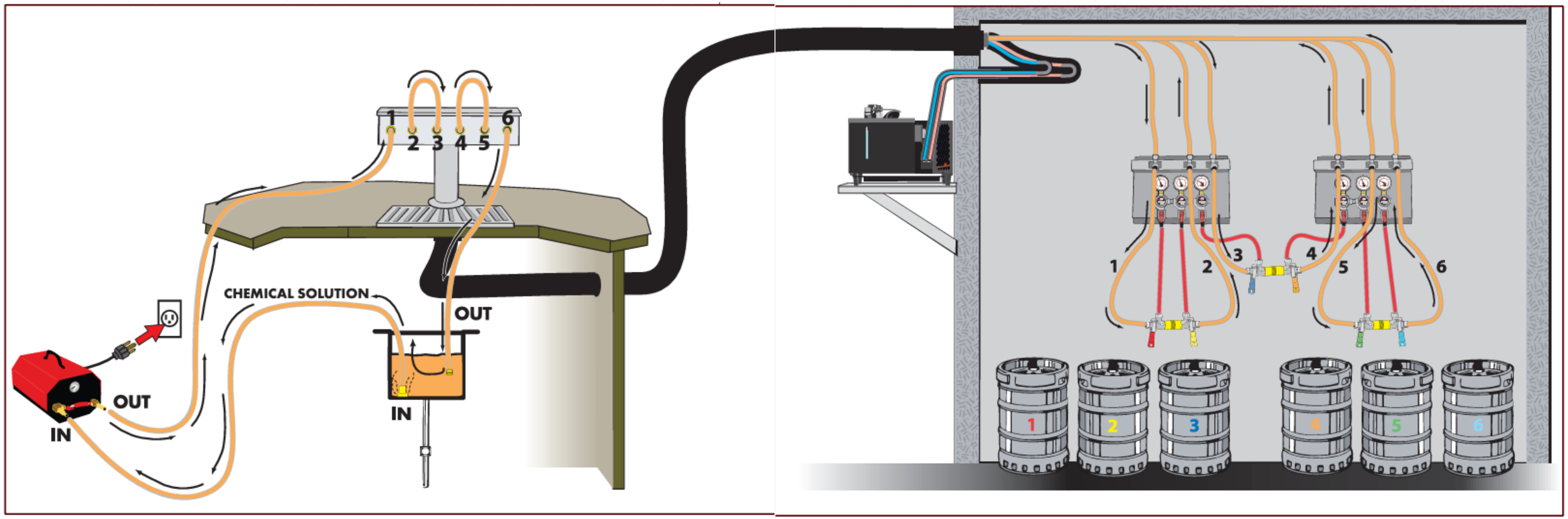


Figure 7.11. Typical line cleaning adapters.

Figure 7.13. Faucets should be removed and cleaned separately.

Figure 7.12. Couplers can be linked to aid in recirculation cleaning.

Figure 7.14. Ensure that all hoses are connected securely before cleaning.

connect the other shank in the loop to a shank in the second loop using a jumper hose fitted with a cleaning adapter on each end, and attach a drain hose or spare faucet to the remaining shank in the second loop. When cleaning four lines, ensure that the drain hose and outlet hose from the pump are not on the same coupler loop.

3. Fill a bucket (the "water bucket") with warm water and place the inlet hose into the water. Turn the pump on and flush beer into a second bucket (the "chemical bucket") until the line runs clear with water. Shut the pump off and discard the flushed beer.
4. Turn the pump back on, allowing warm water to run into the clean chemical bucket. Measure the flow rate of the liquid by filling a beer pitcher or some container with a known volume. A steady flow rate that ideally exceeds the flow rate of the beer is recommended. If cleaning is configured for four lines and flow rate is too slow, remove the jumpers and clean each pair of lines separately.
   - Allow the chemical bucket to fill with just enough water to cover the inlet hose of the pump.
   - Add the appropriate amount of line cleaning

Recirculating Pump Operations

See DBQM (pg. 68) for full directions – only to be carried out by a trained technician

DRAUGHT SAFETY

The best way to ensure complete rinsing of all chemical residue is by checking the pH, which can be done very affordably with test strips. Your line cleaner supplier should be able to provide pH test strips. The pH of caustic cleaner should be 10–13.5; the pH of acid cleaner should be 2–4. When a system is completely rinsed, the pH of the rinse water should be equal to that of the local tap water.

Figure 7.18. pH test strips, or pH paper, can be used to test that all cleaning chemicals have been rinsed from your draught system.

THE IMPORTANCE OF PH

Always verify chemical is rinsed with pH paper!!!

“SINNER’S CIRCLE”

Don’t cut corners!

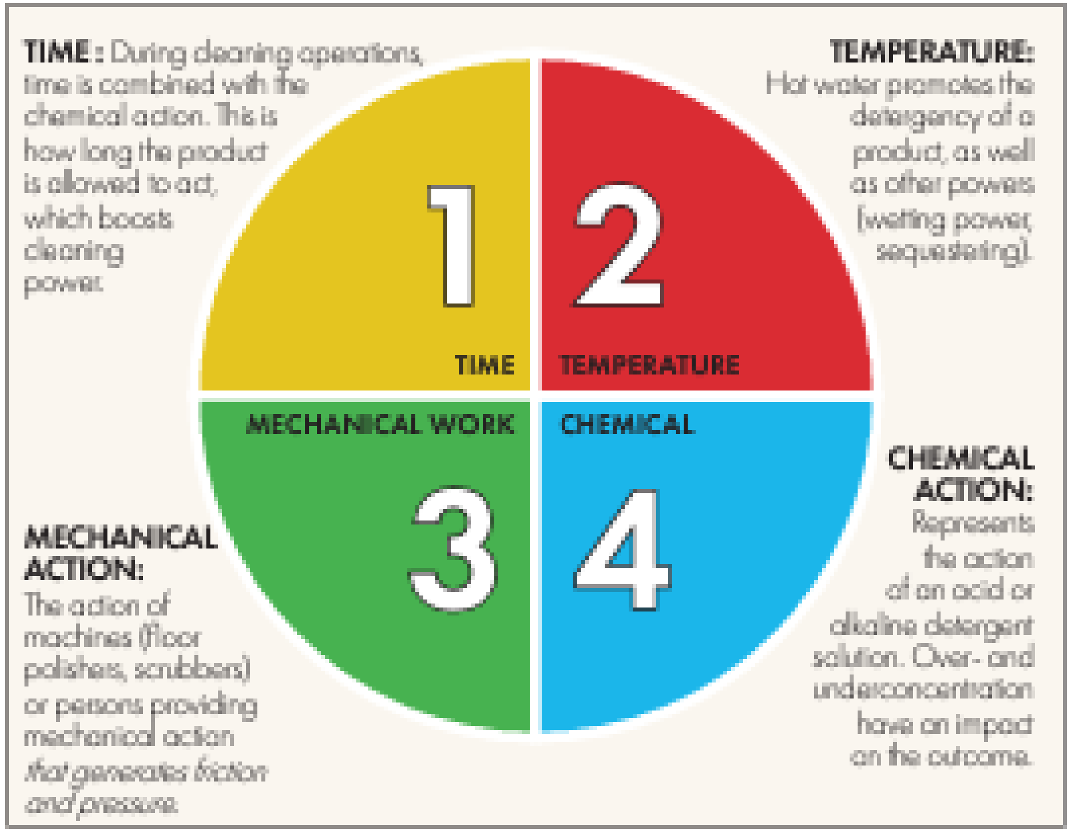


Figure 7.5. Effective draught system cleaning depends on four interdependent factors, arranged here as the “Sinner’s Circle.”

Faucet Cleaning

Scrub & soak all components

Replace parts/gaskets as necessary

TROUBLESHOOTING

- No beer at faucet
  - Empty keg
  - Coupler not engaged/obstructed
  - FOB float down/stuck
  - Gas empty / not on / turned all the way down
  - Kinked line
  - Dirty/obstructed line

TROUBLESHOOTING

- Foamy Beer
  - Temperature at faucet too warm
  - Temperature at faucet too cold
  - Kinked beer line
  - Wrong sized beer line
  - Pressure too high
  - Pressure too low
  - Wrong gas blend
  - Gas in blend out
  - Glycol off/impaired
  - Coupler washer defective
  - Faucet washer defective
  - Dirty/obstructed lines
  - Ripped keg valve seal
  - Clogged vent hole on faucet
  - Overcarbonated keg – brewery issue

TROUBLESHOOTING – Warm Keg

TABLE 5.2. INCREASE IN KEG TEMPERATURE OVER TIME FROM A 38°F STARTING TEMPERATURE

Time (hours)	Temp
0	38°F
1	39°F
2	41°F
3	42°F
4	43°F
5	45°F
6	48°F

TABLE 5.1. TIME REQUIRED TO CHILL A KEG TO 38°F FROM VARIOUS TEMPERATURES

Starting temp.	Hours to reach 38°F
50°F	25.0
48°F	23.5
46°F	21.0
44°F	18.0
40°F	7.0
38°F	0

Troubleshooting – CO2 Leak

CO2 Meters can save lives

Invest in one today!!!

POURING / PRESENTATION

GLASSWARE

Why Invest in Glassware?

- Enhances sensory experience
  - Visual
  - Aroma
  - Flavor
  - Carbonation

Why Invest in Glassware?

- Elevated Experience
  - Branding
    - More specifically, matching the beer to the correct branded glassware can ***increase sales by as much as a third***.
  - Education
    - Provides opportunity for staff to talk to customers about the difference in styles and glassware
  - Value
    - Studies have shown that people are willing to pay “significantly more” for beverages if the glassware is consistent with the style.

**Beer Matters: How Miller Brands Partners with Licensees to Drive Sales.*

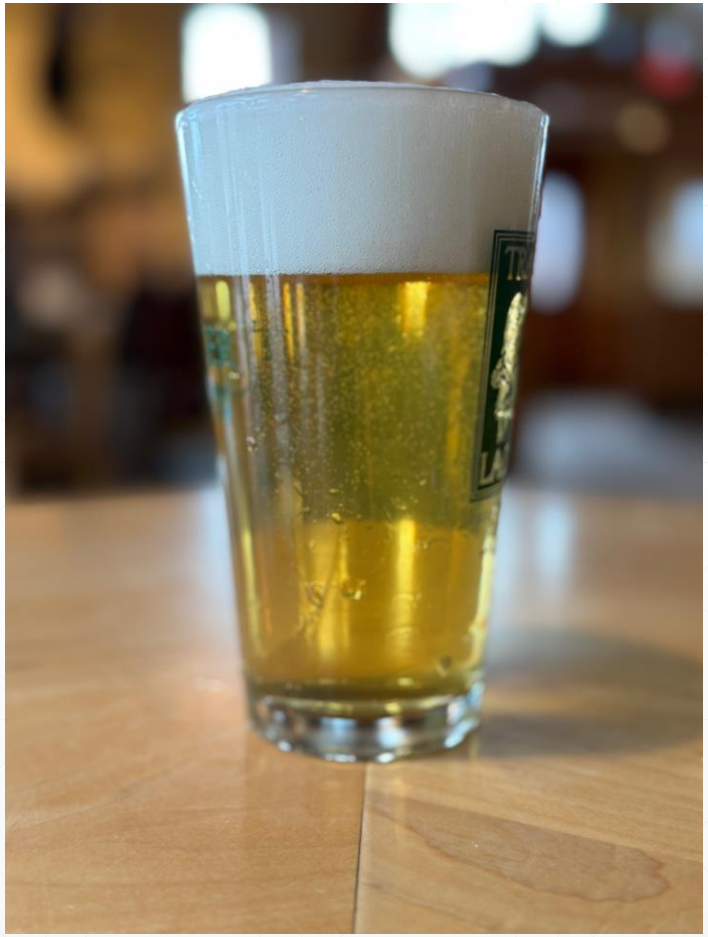
**Does the Shape of the Drinking Receptacle Influence Taste/Flavour Perception?*

**Influence of the Glassware on the Perception of Alcoholic Drinks,* Food Quality Preference Journal

Glassware Considerations - Glass Size vs. Pour Size
“Hey barkeep, can I get a pint?”

Is this a “Pint?”

Or Is this a “Pint?”



Glassware Considerations -Importance of Fill Line –

- Consistency
- Legality - overserving
- Product as advertised
- Foam
- Less beer waste/overpouring

GLASSWARE TYPES
-Historical/Style Driven

BELGIAN

Chalice/Trappist

Tulip

GERMAN ALE

Weissbier

Stange

GERMAN LAGER

Willi Becher

Pils Stemmed / Flute

CZECH LAGER

TANKARDS

ENGLISH ALE

Nonic Pint

Dimpled Mug

NOT ALL DIMPLED MUGS ARE CREATED EQUAL

Czech Tubinger

≠

UK Dimpled Mug

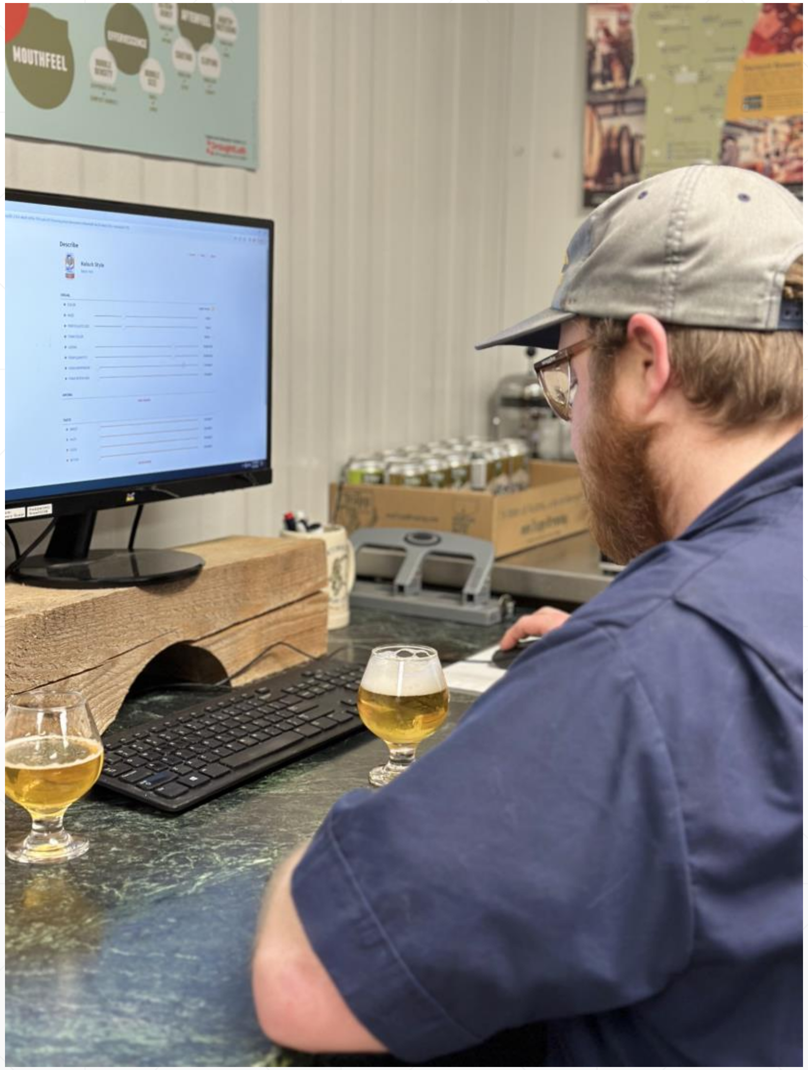
*** https://www.casketbeer.com/home/2020/11/21/not-all-mugs-are-created-equal

GLASSWARE TYPES
-Sensory Driven

Brewery Sensory Analysis

SNIFTER

Imperial Stouts / Strong Ales



TEKU

Tapered lip, delivers sip

Wide to narrow
Concentrates aroma delivery

Large bowl and stem for swirling -releasing aromas

IPA “Sensory Glass”

With so many options, why do we continue to choose:

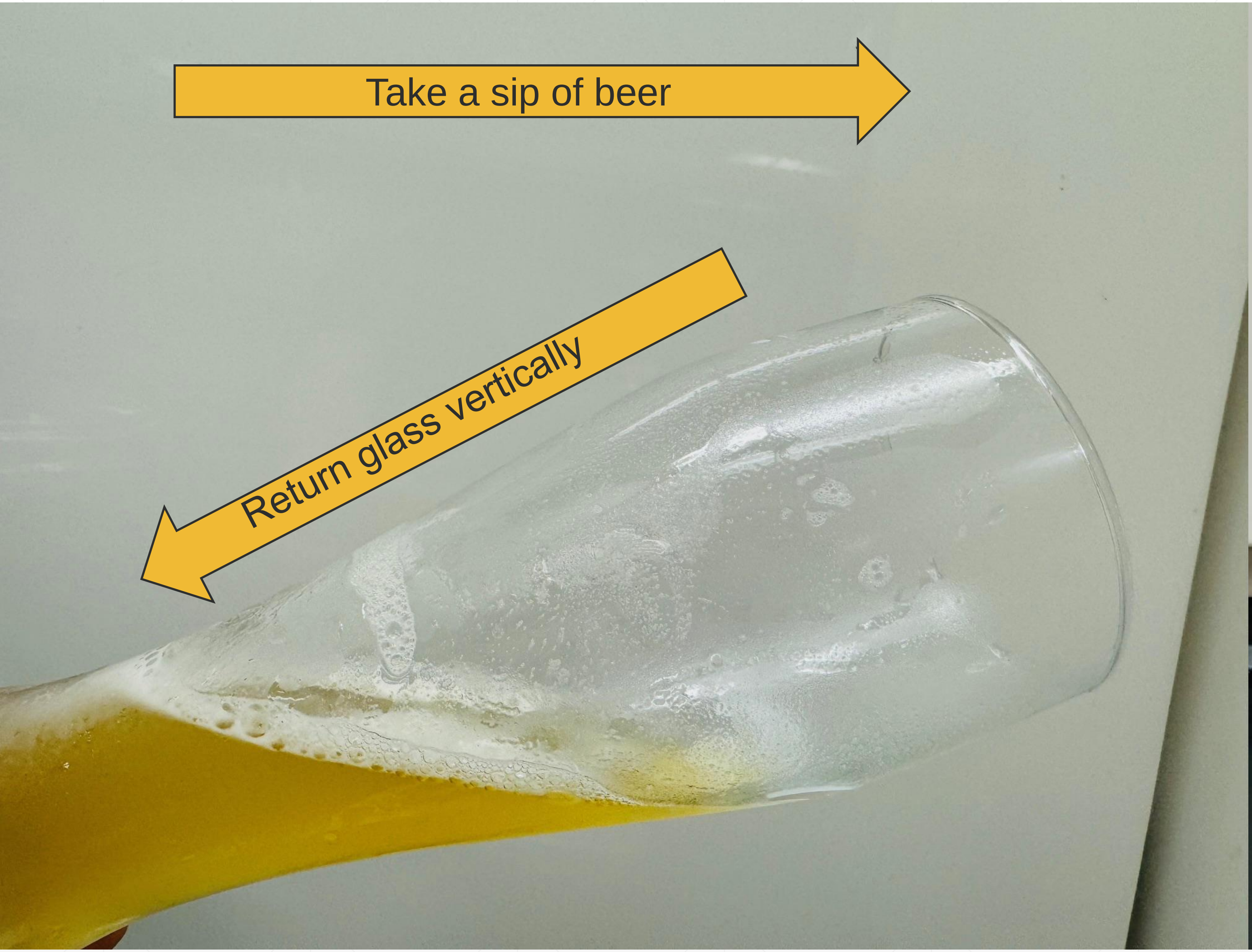
This???

Or this???

GLASSWARE TYPES -Components

Nucleation

Glass Shape – Foam Regeneration



Thin wall = retain beer temperature

Temperature Control – Glass Thickness, Handle, Stem

Thick wall = retain glass/room temperature

Glassware Cleanliness

What is a “Beer Clean” Glass?

- Free of dust, dirt, debris
- No lipstick, smudges, or oils
- No residual cleaner or sanitizer
- No moisture from storage
- No perceptible odors

Figure 6.4. Three properly cleaned glasses used to show the three methods for testing beer-clean glassware.

How to test for Glass Cleanliness

Glassware Washing Options

3-Bay Sink

Hi-Temp DW

Glass Rinser

Standard Pour

"Two-Part Pour"

1. Start normal pour, fill 2/3 with beer, let settle for 20-30 seconds

2. Top off to fill line with foam rising above rim

Slow Pour

Lukr Pour

LAGER ≠ LUKR

-Not all lager styles are suitable for Lukr dispense

-Consult brewery for their preferences on Lukr or not

Nitro Pour


STEP 1
THE BRANDED GLASS
STEP 2
THE ANGLE OF THE POUR
45°
STEP 3
FILL TO THE HARP
STEP 4
THE SETTLE
119.5 SECS
STEP 5
THE TOP UP
STEP 6
ENJOY THE PERFECT PINT
GUINNESS
GUINNESS STOREHOUSE
Home of Guinness, Dublin
Enjoy GUINNESS Sensibly Visit drinkaware.ie

Beer Service Best Practices

Glassware “zones” or “real estate”

Avoid touching lip or rim

Always handle glassware by base

Do not immerse faucet in beer (Lukr as exception)

The “Dunk”

The “Double Dunk”

Avoid the “Beer Handshake” - Rinse exterior spillover

The Dirty Rag

Water Rinse

Thank you,
Time to Enjoy a Beer!

JVANPAEPEGHEM@TRAPPFAMILY.COM

But First, Questions?

JVANPAEPEGHEM@TRAPPFAMILY.COM