BREWERS ASSOCIATION DRAUGHT BEER QUALITY FOR RETAILERS

THE BREWERS ASSOCIATION'S DRAUGHT BEER QUALITY SUBCOMMITTEE'S OVERRIDING MISSION IS TO IMPROVE THE QUALITY OF DRAUGHT BEER DISPENSED TO OUR CUSTOMERS.

Retailers play a critical role in preserving the great flavor and aroma in beer created by brewers. Great beer in a consumer's glass is no accident — beer must be handled with care at retail. Draught beer systems commonly pour a wide range of brewers' and suppliers' beer, so everyone has an interest in keeping great beer great — brewers and wholesalers, but also especially retailers and consumers.

This publication is intended to help retailers consistently pour great beer and preserve profits through industry accepted best practices. When handled properly from brewery to bar to glass, draught beer delivers what many consider to be the freshest, most flavorful beer available. The job is only just beginning when the keg is tapped and beer begins to flow. Great beer quality depends upon proper alignment of dispense conditions (temperature and pressure) and diligent housekeeping (regular beer line cleaning).

We find draught taps so often that we assume it must be relatively simple to maintain and serve beer this way. But behind the simple flick of a handle that sends beer streaming into our glass at the bar, you'll find systems that require precise design, explicit operating conditions, and rigorous, regular maintenance to ensure the proper dispense of high-quality beer.

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TABLE OF CONTENTS

Brewers Association would like to thank the Draught Beer Quality subcommittee for their continuing work for the advancement of draught beer quality; Jeff Bell, Todd Blondis, Peter J. Coors, Rob Gerrity, Ken Grossman, Ernie Jimenez, Jaime Jurado, Charles Kyle, David Lujan, John Mallett, Matt Meadows (Chair), John Pinkerton, Kevin Reed, Jeff Schaefer, Ken Smith, Neil Witte.

KEY CONSIDERATIONS AND COMPONENTS: WHAT SHOULD YOUR SYSTEM LOOK LIKE?

GAS

Dispense gas in a draught system performs three critical functions:

1. Maintaining the carbonation level of the beer from start to finish
2. Preserving the flavor of the beer in the keg
3. Pushing the beer from the keg to the faucet

There are several different dispense gas options to choose from, depending on the system design.

CARBON DIOXIDE (CO_2)

Carbon dioxide (CO_2) is the ideal dispense gas for direct-draw systems. To keep the beer properly carbonated in the keg, relatively low pressures are used. Proper pressure is a function of the carbonation level of the beer (expressed in volumes), the beer temperature and altitude.

Vol. CO_2	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1
Temp. °F	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi	psi
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

* Chart assumes sea-level altitudes. Add 1 psi for every 2,000 feet above sea level.
Based on Data from "Methods of Analysis," American Society of Brewing Chemists, 5th Edition - 1949

If the proper pressure is exceeded, the beer will over-carbonate in the keg. With too little pressure, the beer will go flat in the keg.

CO_2-RICH BLENDS & GAS BLENDERS

In longer systems the pressure required to deliver beer from the keg to the faucet may exceed the proper pressure of pure CO_2. In this case, use a blend of CO_2 and nitrogen (N_2) gases.

A lower percentage of CO_2 allows for a higher applied pressure without over-carbonating the beer.

For many long draw draught systems, the proper blend is usually somewhere between 60%–80% CO_2. This blend is achieved by using a gas blender, which produces the proper blend on site.

Gas Blenders

Gas blending systems are available for higher-volume applications that produce pure N_2 onsite which is then blended with the CO_2. This eliminates the need to purchase cylinder N_2.

Nitrogen Generators

For more information about which gas blend is correct for your draught system, consult the Draught Beer Quality Manual. http://www.draughtquality.org/

NITROGEN-RICH BLENDS, AKA "GUINNESS GAS" OR "PRE-MIX"

25% CO_2 /75% N_2 is specifically blended for dispensing nitrogenized, or "nitro" beers. These beers have very low CO_2 content, yet require a high dispense pressure to push them through a specialized faucet.

This gas is *only* intended for use with nitrogenized beers. It's widespread use in some markets for dispensing fully carbonated beers, does, in fact, make those beers go flat in the keg over the course of just a few days.

25%/75% is available premixed in a single cylinder, usually a nitrogen tank. It can also be produced with an onsite gas blender. The premixed cylinders have a much higher ongoing cost than gas blends produced onsite with a blender.

Here is a comparison of using 25%/75% on your fully carbonated beers v. blending onsite with a more appropriate blend:

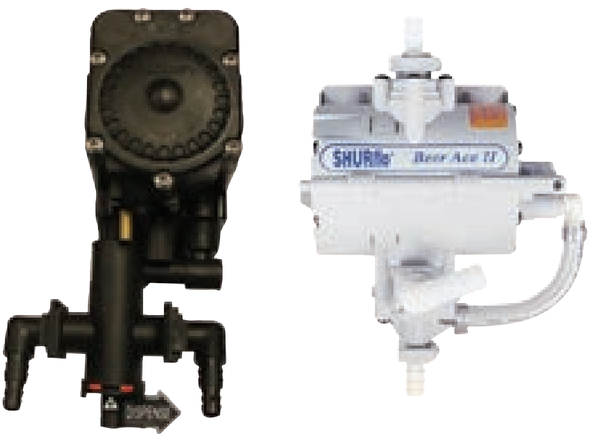
GAS COST ANALYSIS FOR BEER DISPENSED AT 25 PSI				
Gas Type	Price	Cu. Ft	Kegs Dispensed*	Gas cost per keg
Pre-Mix (25%/75%)	$33.00	244	45.2	$0.73
CO_2 (50lb.)	$16.00	405	75.0	$0.21
N_2	$25.00	244	45.2	$0.55
Self Mix (70% CO_2-30%N_2)				$0.32

*A keg dispensed at 25 PSIG uses 5.4 Cu. Ft. of Gas – Calculations assume no waste

Pre-Mix is *more than twice as expensive* as blending onsite. Dispensing carbonated beers with Pre-Mix wastes money and makes beer go flat.

BEER PUMPS

Beer pumps are an alternative to using blended gases for systems with higher pressure requirements (such as longer runs or rises from cooler to tap).



Beer Pumps

Pure CO_2 is applied to the keg at ideal pressures. This pressure pushes the beer to the pump, which is mounted on the cooler wall above the keg.

A higher gas pressure is applied to the pump, which in turn applies a direct pressure to the beer, pushing it the longer distance to the faucet. The gas drives the pump and does not come in direct contact with the beer, eliminating the risk of over-carbonation.

Beer pumps are ideal for very long draught systems (200 feet or more).

AIR COMPRESSORS

Some systems employ compressed air instead of N_2 for blending with CO_2. While this declining practice allows higher pressures to be applied without risk of over-carbonation, oxygen ruins the flavor of the beer in less than a day, resulting in declining beer sales. **Compressed air should never be used to dispense draught beer.**

TEMPERATURE

Temperature directly affects the pressure required to keep CO_2 in solution.

As beer warms, dissolved CO_2 comes out of solution, requiring increasingly higher applied pressures to maintain carbonation.

Conversely, as beer gets colder, CO_2 is more readily absorbed. The applied pressure must be adjusted downward to prevent over-carbonation.

RECOMMENDED SERVING TEMPERATURE

Different styles of beer have different recommended serving temperatures. It is in most cases impractical to maintain different serving temperatures for different beers in the same draught system. Most draught systems are designed around a generally accepted common serving temperature of 36–38°F.

KEEPING DRAUGHT LINES COLD

Draught lines must be kept as cold as the keg. If the beer warms up in the draught line, the CO_2 will break out of solution and cause foaming at the tap. There are three types of cooling systems for draught lines.

DIRECT DRAW

In direct draw systems, the draught lines are fully contained in the keg cooler. The most common examples are keg boxes with the tower mounted on top or walk-in coolers with the shank and faucet assemblies running through the wall.

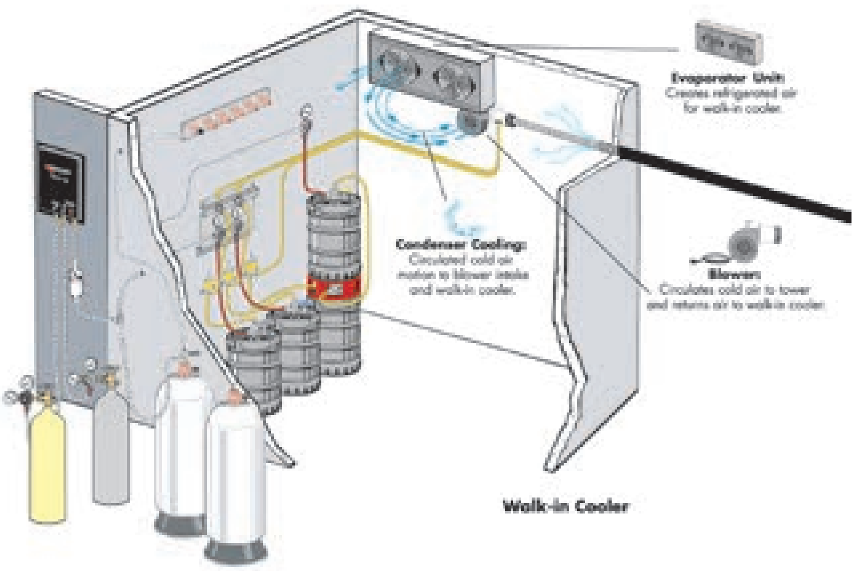
Direct Draw Kegerator

FORCED AIR/BLOWER SYSTEM

Forced air blower systems are for lines which exit the cooler and are not longer than a distance of 25 feet.

Beer lines run to the tower through an insulated duct system. A blower is mounted in the keg cooler and blows cold air from the cooler through the ductwork to the tower. Another duct is set up to provide a return for the airflow.

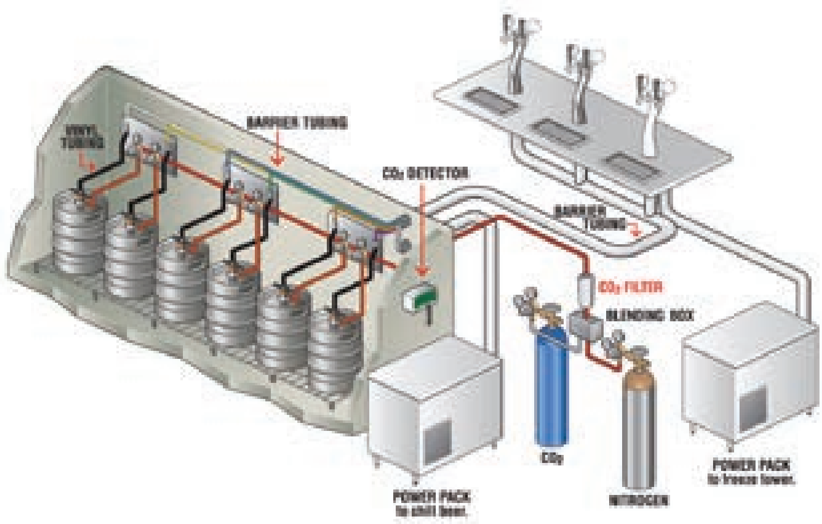
These systems are vulnerable to temperature pickup from factors like high traffic flow in the cooler and high temperatures in the environment surrounding the duct.



Forced Air / Blower System

GLYCOL SYSTEM

Longer draught beer systems typically use chilled liquid to keep the beer cold. A chiller maintains the temperature of a glycol/water mixture at 28–31°F, and continuously pumps the cold solution through a specialized beer line bundle. Inside this tightly insulated housing, beer lines are bundled around the glycol supply and return lines, keeping the beer cold and the CO_2 in solution. Glycol systems are very efficient and can be used for runs of any length.



Long-Draw System

EQUIPMENT

Many draught system fittings and equipment are made of chrome plated brass. Despite their functionality, they should be avoided if possible, as the plating can wear off, exposing the brass, which can impart a metallic off-flavor in the beer.

Stainless Steel Faucets

In addition, brass parts are more susceptible to bacterial growth.

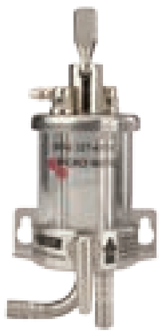
Wherever possible, stainless steel parts should be used. This use of stainless steel includes faucets, splicers, T's, etc. You will notice a huge flavor advantage and so will your customer.

FOBS/BEER SAVERS

FOB (Foam on Beer) detectors are devices that are installed on the keg couplers or the cooler walls and shut off the flow of beer when kegs empty. FOBs prevent the waste associated with changing kegs.

Plastic FOB

Plastic FOB



Stainless Steel FOB

While they are very effective, FOBs also have the potential to harbor beer-spoiling bacteria and require a special quarterly cleaning regimen. Because of potential quality-related concerns, FOBs should only be used in very long systems of 100 feet or more, where the cost associated with keg change is very high.

SYSTEM DISTANCE

When it comes to draught system length, shorter is usually better. Benefits of shorter draught systems include:

- Less overall draught line surface means less overall buildup in the lines, making cleaning easier and less expensive.
- Overall cost of equipment and installation is usually less expensive with shorter systems.
- Line replacement costs are less with shorter systems, especially systems short enough to utilize direct draw or forced air cooling systems.
- Less beer is contained in the lines due to shorter length and the ability to utilize smaller diameter tubing. This means less beer is lost during line cleaning, lowering the associated costs of system maintenance.
- Shorter systems won't require beer pumps or FOBs, both of which can introduce quality-related issues.

DRAUGHT BEER QUALITY COMPONENTS

Draught beer systems can be simple or complex. Essential deciders represent the basic integral components and practices you must include in order to maximize draught beer flavor and freshness. Additional items and practices can further increase the quality of draught beer at retail.

ESSENTIAL DRAUGHT QUALITY COMPONENTS

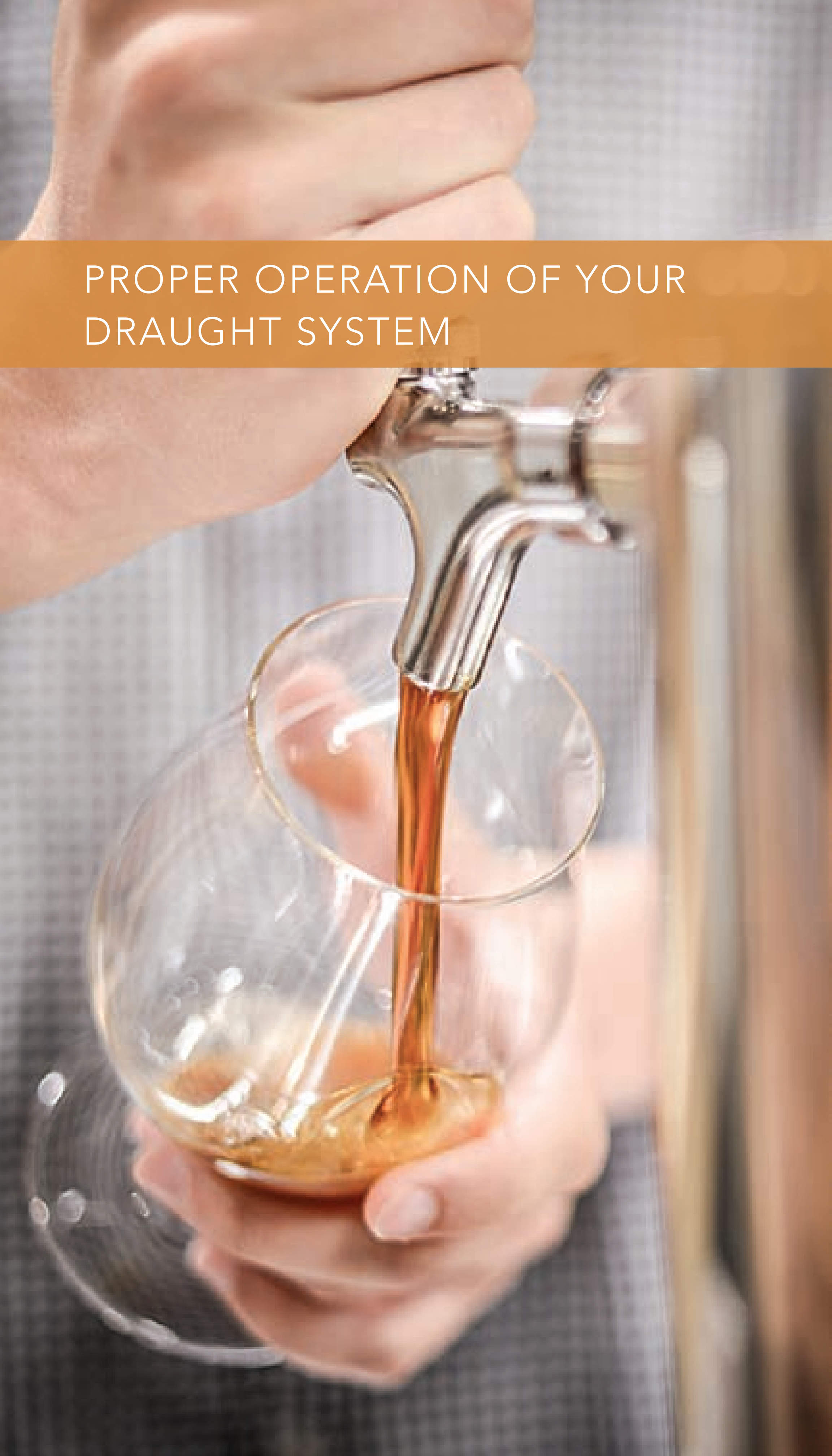
- Reliable refrigeration in beer storage coolers (36-38 °F)
- Beer lines made of recommended materials such as barrier tubing
- Properly chilled beer line bundles that deliver cold beer at the faucet
- Stainless steel beer contact components (faucets, shanks, splicers, tail pieces, probes)
- Beverage grade CO_2 and N_2 for serving draught beer
- Correct gas blend and dispense pressure for proper carbonation
- Inventory rotation and management to keep beer fresh
- Line cleaning every two weeks, properly executed

ADDITIONAL DRAUGHT QUALITY FACTORS

These items and practices will have a positive impact on the quality of draught beer in your retail establishment, and will significantly improve your draught beer sales:

- FOBs
- Beer only in beer cooler
- Inventory tracking devices
- Properly trained beer line cleaning technician
- Properly trained draught system installer
- Trained staff for draught system management

PROPER OPERATION OF YOUR DRAUGHT SYSTEM



FRESHNESS

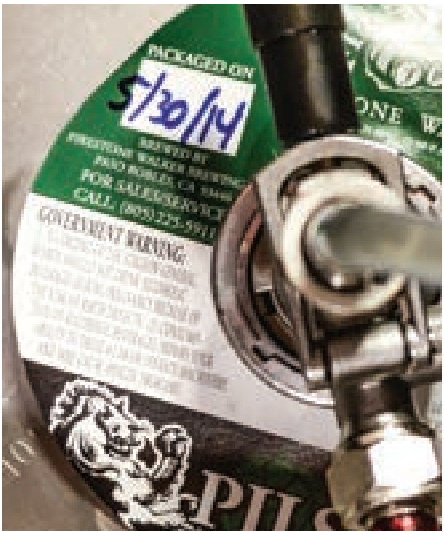
Beer is like liquid bread – the fresher the better. Focusing on freshness is key to serving great draught beer. Retailers represent the last line of defense in dispensing fresh beer by keeping their inventory sized appropriately, rotating their stock, and buying brewery fresh beer from their wholesaler partners.

Time and temperature are the two major enemies of beer flavor. Oxidation begins the day the beer is packaged, so flavor suffers as time marches on. And higher temperatures rapidly accelerate oxidation, damaging beer flavor faster still.

TIME

All beer brands have a recommended freshness window, past which the brewery has determined the beer no longer represents the intended flavors. When a beer is older than the freshness window, oxidation significantly alters the flavor, aroma and appearance of the beer. Every beer brand is different, so the freshness window might vary by weeks or months.

Breweries communicate freshness information in many ways. Most beer brands are marked with a "packaged-on" date, a "best before" or "pull" date, or another coding system. Manage your inventory to finish your draught beer well within the freshness window. If needed, contact your beer suppliers to determine the shelf life of each beer brand you carry.



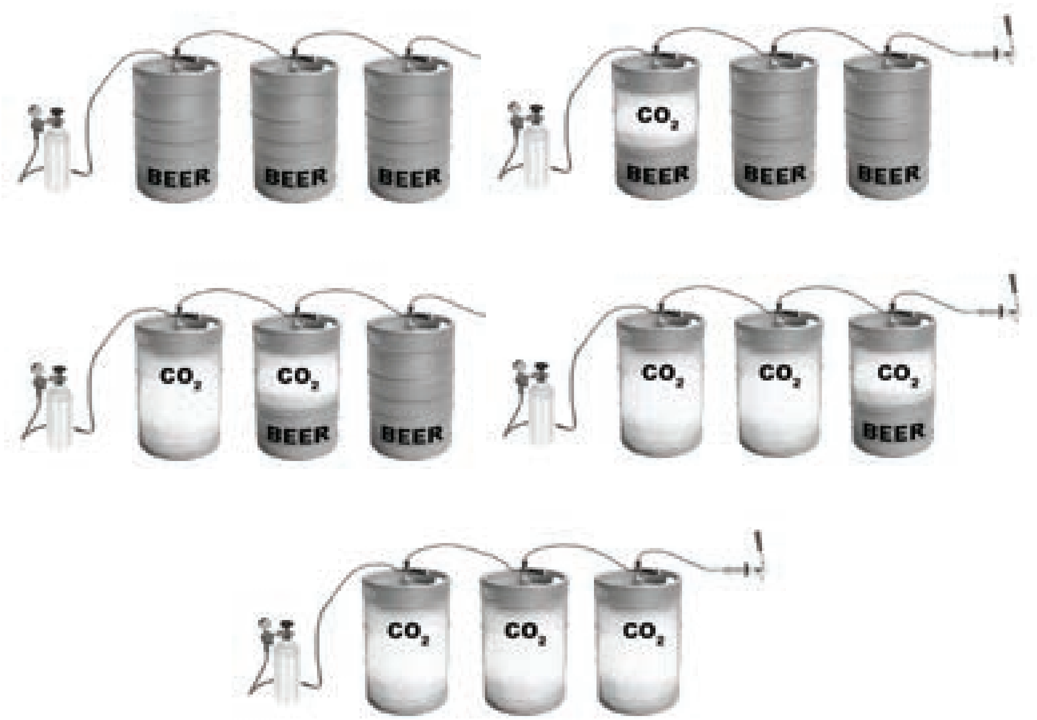
TEMPERATURE

Most breweries require constant refrigeration of their draught beers. Large-scale domestic breweries and most craft breweries do not pasteurize draught beer. For the freshest most flavorful beer, **it is recommended that draught beer kegs be refrigerated at all times**. Contact your beer suppliers for recommended storage and serving temperatures.

KEGS IN SERIES

Busy accounts may connect kegs in a series to meet peak capacity demands. Chaining two or three kegs of the same product together allows all of the chained kegs to be emptied before beer stops flowing.

To prevent foaming, series kegs should be chained as illustrated below:



Kegs linked in series

When pressurized and pouring, beer flows from the first keg to the second and on to the third before it travels to the faucet. Chaining kegs in this manner is necessary to prevent the system from foaming; however because older beer is being pushed into fresher kegs, this practice is in opposition to a traditional first-in-first-out rotation.

Because series kegs are inherently out of rotation, all kegs in the series need to be completely emptied on a weekly basis. Failure to empty the series completely leaves old beer in the system. **Never rotate the last keg in a chain onto the front of a new chain of kegs**.

GLASSWARE

Glassware is an important and often overlooked component of the draught beer ritual. Clean, cool (but never frozen) glassware will increase the presentation value of the beer you serve and enhance consumer enjoyment of their favorite beer brand.

STYLES

Glassware is available in myriad shapes and serving sizes. Each brand of beer will taste different in different styles of glassware. For this reason breweries will often suggest certain glassware style(s) that enhance the flavor and aromas of their beer brands.

These glasses all contain features designed for specific beer styles, exhibiting functionality, tradition or both. Choosing the proper glassware style will enhance a consumer's experience and lead to repeat sales.

CLEANLINESS

A perfectly poured beer requires a properly cleaned glass. As a starting point, glassware must be free of visible soil and marks. A beer-clean glass is also free of foam-killing residues and lingering aromatics from cleaners or sanitizers.

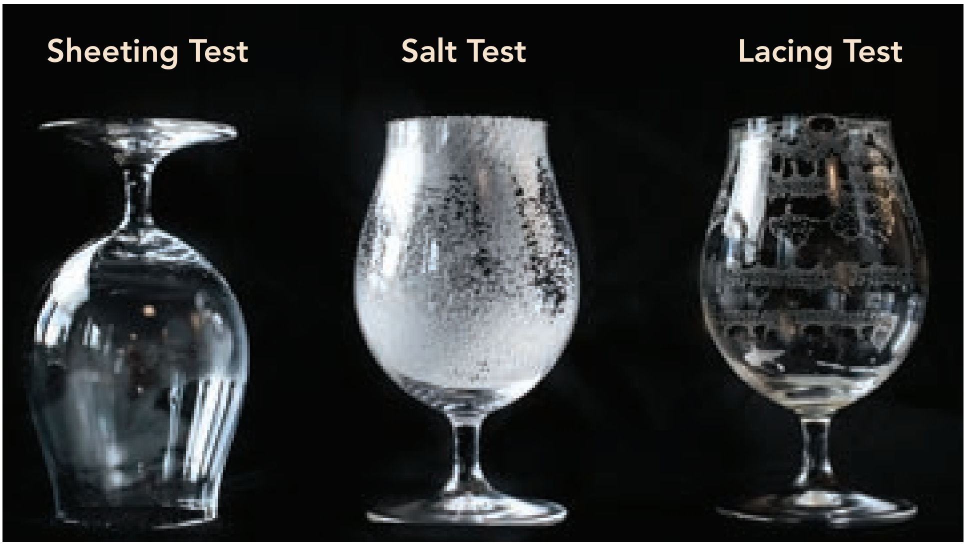
- Beer glassware should always be washed in sinks or dishwashing equipment which are only used for glassware. Sinks and dishwashers used for food dishes will transfer grease onto beer glassware which destroys beer foam.
- Choose detergents specifically intended to clean beer glassware, and which are not fat or oil based.
- Always use the recommended rate of detergent for the dishwasher or sinks. For example, detergents often provide instructions for 5 gallon sinks, whereas many 3-sink systems are 3.5 gallons in size.
- Allow glasses to completely air dry, allowing sanitizer to sufficiently evaporate and preventing residual odors.

Three-Tub Sink

TESTING FOR "BEER-CLEAN" GLASS

Beer poured into a beer-clean glass forms a proper head and creates residual lacing as the beer is consumed. After cleaning, you can test your glasses for beer-clean status using three different techniques: sheeting, the salt test, and lacing.

- **Sheeting Test:** Dip the glass in water. If the glass is clean, water evenly coats the glass when lifted out of the water. If the glass still has an invisible film, water will break up into droplets on the inside surface.
- **Salt Test:** Salt sprinkled on the interior of a wet glass will adhere evenly to the clean surface, but will not adhere to the parts that still contain a greasy film. Poorly cleaned glasses show an uneven distribution of salt.
- **Lacing Test:** Fill the glass with beer. If the glass is clean, foam will adhere to the inside of the glass in parallel rings after each sip, forming a lacing pattern. If not properly cleaned, foam will adhere in a random pattern, or may not adhere at all.



STORING GLASSWARE

Handling Clean Glasses

Keep glassware clean and odor-free after washing:

- Air-dry glassware. Drying glasses with a towel can leave lint and may transmit germs and odors.
- Dry and store glasses in a stainless-steel wire basket to provide maximum air circulation. Similar deeply corrugated baskets or surfaces also work.
- Do not dry or store glassware on a towel, rubber drain pad, or other smooth surface, as they can transfer odors to the glass and slow the drying process.
- Store glassware in an area free of odors, smoke, grease, or dust.
- Frozen glasses will pick up stale freezer odors, reduce beer flavor by numbing the palate, cause foaming problems when pouring and can transmit sanitizer aromas and flavors to beer when frozen wet with sanitizer. All of these will significantly reduce retailer profits."

POURING DRAUGHT BEER

Proper serving of draught beer creates a "controlled" release of carbonation that develops a better tasting beer and a complete sensory experience. The evolution of CO_2 gas during pouring builds the head and releases desirable flavors and aromas.

TECHNIQUE

Hold the glass at a 45-degree angle about two inches below the spout so that beer will initially flow down the side of the glass [NOTE: To prevent transfer of bacteria, in no instance should a faucet nozzle touch the inside of the glass].

1. Grip tap handle at its base, open the faucet quickly and completely so beer flows freely.
2. As the glass fills, gradually tilt it upright so that you finish pouring straight down the middle of the glass to build a one inch collar of foam.
3. Close faucet quickly to avoid wasteful overflow.

ABOUT GROWLERS

Growlers are reusable sustainable packages used to take draught beer home from breweries, taverns, super markets and even gas stations and convenience stores. The galvanized pail of the early 1900's has evolved into the 32–to 64–ounce pressure rated, sealed container made of glass, ceramic, stainless steel or other material. Recent changes in some state statutes now allow retailers to fill and sell growlers.

Growlers are filled in many ways, most commonly by attaching a tube to a draught beer faucet. The tube is then inserted to the bottom of the growler, and the faucet is opened completely, filling the growler from the bottom up. When the beer reaches the proper fill height the faucet is turned off and the growler is disengaged from the tube. The growler should be capped immediately, then sealed and labelled according to state law. Typically, consumption is recommended within 72 hours of filling.

Growlers are increasingly popular, *but the decision to sell them introduces significant safety and hygiene issues*. Tips for managing these issues include:

- *Fill and sell only pressure rated growler containers*. Ask your growler supplier to confirm the growlers are suitable for storing carbonated beer.
- Rinse growlers with cool water immediately prior to filling.
- Never overfill a growler, leaving 5% headspace or filling to the manufacturer's recommended level.
- Never etch or scratch glass growlers, as this weakens them.
- Keep filled growlers cold at all times and remind customers to do the same. *The pressure in a warming growler can increase enough to cause the vessel to explode.*
- Clean growler immediately after emptying, and allow to drip dry upside down and uncapped.

PROTECT YOUR INVESTMENT AND MAXIMIZE YOUR PROFITS

Presenting draught beer to your customers in a bar or restaurant setting is far more complicated than the college days of purchasing a keg, putting it on ice and tapping with a hand pump. Time, temperature and proper dispense gas will protect your investment in beer, and a properly maintained dispense system will help minimize waste and maximize profit.

Many industry leaders compare a draught system to a vehicle: a "profit engine" if you will. This modern marvel made of stainless steel and special polymers will deliver maximum profits when maintained to brewery and draught equipment manufacture recommendations.

Frequently checking on the beer and system components is very important to maintaining your draught beer system. Use this list of check points to assist you in evaluating your draught beer system.

DRAUGHT BEER SYSTEM CHECK LIST

TEMPERATURE

- Air temperature in keg cooler: between 36°F – 38°F
- Beer temperature in keg cooler and at point of dispense: between 36°F – 38°F

DRAUGHT LINE AGE

- Vinyl tubing: less than one year old
- Barrier tubing: less than 10 years old

DRAUGHT LINE VISUAL

- Clear draught tubing for easy visual inspection
- Free of sediment
- Should not be translucent or discolored (when filled with clear water)

DRAUGHT LINE CLEANING LOG

- Between 7–and 14–day cleaning cycle (see local ordinances concerning frequency)
- Gaps in service of more than 21 days require special attention
- Seasonal accounts require special attention to protect beer lines during off season

GAS SOURCE

- Straight CO_2 for Ales and Lagers, 12–15 PSI (direct draw systems)
- Blended CO_2 - Rich blend (60 – 80% CO_2) for Ales and Lagers, 22 – 28 PSI (long draw systems)
- Pre-Mix 25% CO_2 / 75% N_2 for Nitrogenized beers ONLY
- Compressed air should never be used to dispense draught beer

FAUCETS AND DRIP TRAY

- Rinsed free of beer
- No physical buildup of beer soils or mold present

DRAUGHT SYSTEM CLEANING AND MAINTENANCE

SYSTEM MAINTENANCE

Beer is a food product and is susceptible to contamination from a whole host of microorganisms. Thankfully, hops and alcohol prevent any pathogens from growing in beer, so contaminated beer won't make anyone sick. Nonetheless, if you want your beer to taste good, everything that comes in contact with the beer needs to be cleaned regularly, especially your draught system. In order to ensure your draught beer tastes as the brewer intended, the following procedures must be followed.

DRAUGHT SYSTEMS CLEANED AND SERVICED - AT A MINIMUM EVERY TWO WEEKS (14 DAYS) - AS FOLLOWS:

- Clearly posted documentation of line cleaning and servicing records is recommended in all keg coolers (visit http://www.draughtquality.org/wp-content/uploads/2012/01/CleaningLog.pdf for a printable line cleaning log).
- Turn off your glycol system if possible and push beer from lines with cold water.
- Clean lines with caustic solution at 2% or greater concentration for routine cleaning of well-maintained lines, or at 3% for older or more problematic lines. Contact your chemical manufacturer to determine how much chemical is needed to achieve these recommended concentrations. If you use non-caustic-based cleaners, such as acid-based or silicate-based cleaners, be sure to use the cleaning concentrations recommended by the manufacturer. For best results, maintain a solution temperature of 80 to 110 °F during the cleaning process.
- Using an electric pump, circulate caustic solution through the lines at a minimum of 15 minutes at a flow rate of up to 2 gallons per minute. If a static or pressure pot is used (though not recommended) the solution needs to be left standing in the lines for no less than 20 minutes before purging with clean water.
- Disassemble, service and hand clean faucets; hand clean couplers.
- After cleaning, **completely rinse lines with cold water** until pH matches that of tap water **to ensure all cleaning chemicals have been removed**, and no visible debris is being carried from the lines.
- Repack beer lines with beer **only after rinsing lines with water**.

ACID CLEANING - EVERY THREE MONTHS (QUARTERLY) - AS FOLLOWS:

- Disassemble, service and hand clean all FOB devices.
- Disassemble, service and hand clean all couplers.
- Perform acid cleaning of draught lines using the same procedures as outlined above.
- Routine use of caustic cleaning solutions with EDTA or other chelating agent additives may decrease the need to clean regularly with an acid-based cleaner.

ELECTRIC PUMP CLEANING: THE RECOMMENDED CLEANING PROCEDURE

Electric pumps

The industry currently uses two primary beer line cleaning procedures: re-circulation by electric pump and static or pressure pot cleaning. Electric re-circulating pump cleaning is recommended as the approach for nearly all systems. Re-circulation pump cleaning uses the combination of chemical cleaning and mechanical action, to effectively clean a draught system, by increasing the normal flow rate through the beer lines during the cleaning process.

While static or pressure pot cleaning is an alternative, it is a less effective and is not a recommended method for cleaning. This procedure requires additional time to ensure that the cleaning solutions have the right contact time in line, to make up for the lack of mechanical force. For more detailed descriptions and complete step-by-step procedures visit Chapter 8 of the Draught Beer Quality Manual at www.draughtquality.org.

CASE STUDIES AND ECONOMICS OF LINE CLEANING

Draught beer is the second greatest profit maker for bars/restaurants offering 80+% profit margin. Draught dispense can be environmentally friendly because kegs save 165 (12 oz.) bottles with each turn and then typically are reused. A simple exploration illuminates its profitability.

Case Study I: Total profit in a ½ barrel of beer retailed at $4.00/ Glass.
Cost of ½ bbl of beer = $100.00
Refundable Deposit = $50.00
Number of 16 oz. glass Servings with ¾" of foam and 15 oz. of beer = 132
Retail Price = $4.00
Total Gross profit = $528.00 minus keg cost = $428.00 net profit.
Return on each $1.00 invested = $4.28

The formula for profit margin is net profit divided by gross profit. In the case (above) of a single keg, that is $428/$528 or 81%. $0.81 per $1.00 in sales is profit. The remainder is the serving cost. In this example the serving cost would be $0.19 per $1.00 in sales or 19% serving cost.

Case Study II: Cost to maintain a 10 faucet draught system.
10 Draught Lines x $10.00 per draught line cleaning and maintenance investment = $100.00
Servings Per Week from example above = 1,320 x 2 weeks = 2,640 servings in 14 days
Let's take the $100.00 investment in cleaning and maintenance and divide by the 2,640 servings. You will see each serving of draught beer will require $0.04 to protect the flavor and integrity of the beer on draught.

Case Study III: Yearly profit from draught beer at a retail account with 10 draught beer lines. *Here is what a case study looks like when you dig a little deeper into the draught beer numbers.*
Number of Draught Lines = 10
Number of ½ barrels sold each week = 10
Weekly Net Profit in this 10 draught line system at 10 kegs per week = $4,280.00
52 weeks per year x $4,280.00 = $222,560.00 total profits from draught beer.

In this example the cost of cleaning for 10 dispense lines, cleaned once every two weeks, is $100/system clean x 26 cleans/year...or $2600 annually. Proper cleaning as recommended by the Brewers Association consumes only 1.2% of net profits...this is the cost of draught quality.

Case Study IV: *How much beer is in each line of this 10 line system.**
⅜″ Vinyl or "jumper line" = ¾ oz. per foot. 6′ of line contains 4.5 ounces of beer
Assume 50 foot run from cooler to taps
$^5/_{16}$″ barrier tubing = ½ oz. per foot. 50′ of line contains 25 ounces of beer
¼″ stainless = 1/6 oz. per foot. 3′ contains 0.5 ounces of beer
Total beer per draught line = 30 ounces
10 draught lines = 300 ounces
$100.00 keg cost divided by 1984 ounces = $0.05 per ounce beer cost.
ounces of beer cost = $15.00 cost of beer in the entire draught system.

WORK YOUR NUMBERS HERE. **Calculate your cost of beer line cleaning as a % of yearly gross profits from draught beer sales**

NUMBER OF DRAUGHT LINES	
AMOUNT OF BEER IN LINES - OUNCES *Use example above*	
COST PER OUNCE OF BEER *Keg cost/ounces in keg*	
COST OF BEER IN LINES *Number of draught lines x cost of beer x cost per ounce of beer*	
LINE CLEANING COST *This will vary depending on your line length and design of your system*	
TOTAL COST OF LINE CLEANING *Cost of beer in lines plus line cleaning cost*	
YEARLY CLEANING INVESTMENT *Total cost of line cleaning x 26*	
YEARLY PROFITS FROM DRAUGHT BEER SALES	
LINE CLEANING COST AS A % OF PROFITS *Line cleaning cost/yearly profits*	

ECONOMICS OF BEER LINE CLEANING

Retail confidence in draught beer is growing. According to Beer Institute, U.S. draught beer volume grew by over 3% from 2009 to 2013. 3% growth equaled an additional 1,246,000 ½ barrels.

A recent white paper (Draught Beer Quality Subcommittee: "The Economic Benefits of Line Cleaning") used Wisconsin industry data to show that *a two-week line cleaning cycle drove a* ***4% higher*** *growth rate* than locations not using the two-week cycle. This built on an earlier industry study (David Quain: "Draught Beer Quality – Challenges and Opportunities), which showed similar draught sales gains (2%) from systems cleaned weekly. Quain's study also found that retail *locations which only cleaned their lines every 5 to 8 weeks saw a* ***7% decline*** *in draught beer sales.*

CASE STUDY V: INFREQUENT DRAUGHT LINE CLEANING IMPACT ON REVENUE
15 ½ bbl kegs sold per week = 780 ½ bbl kegs per year sold
7% decline in sales = 55 less ½ bbl kegs per year
Profit from a $100 ½ bbl keg sold at $4.00 per pint = $428.00
55 ½ bbl kegs x $428.00 = $23,540.00 in lost revenue by going to a 5 to 8 week cleaning frequency.

Brewers from the U.S. report similar experiences with various retail accounts. Draught beer can and will deliver sales and profits, but only when equipment is properly maintained. The upward trend in U.S. draught beer sales is due to many factors. Brewer, wholesaler and retailer investment in education is paying off. Sales and service from draught professionals are generating profits that will sustain a rise in U.S. draught beer sales for years to come.

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