



Wine on Tap – The “Sankey” Keg

Wine on Tap is back, and the stainless steel “Sankey” keg concept is spreading through the US wine market with an unprecedented fervor. From San Francisco to New York City and most major wine sales centers in between, on-premise operators are installing dedicated, quality draft wine systems to serve their customers wine-by-the-glass and carafe from this reusable, well proven bulk format.



Restaurants and wine bars are enjoying profit margins in excess of 25% over and above that of bottled wine by selling Wine on Tap. With virtually zero product waste over partial bottle spoilage in traditional wine-by-the-glass programs, Wine on Tap has many product quality benefits. Add to that, consumer awareness of the environmental benefits of reusable stainless steel kegs and thus reduced landfill and recycling center overflow; you can see how, if properly executed by the wine and hospitality industries, the Wine on Tap category will flourish in the 21st century and beyond.

The Wine on Tap concept was first attempted in 1981 and 1982 and again in the late 1980’s to early 1990’s with marginal success. Its previous failures in the US market were due in part to low quality wines dedicated to the bulk “jug” wine category, ignorance and mistrust from the consumer regarding wines packaged this way, as well as the lack of proper dispensing technology, and infrastructure in the supply chain.

What insures its success this time around involves wine processing, packaging and dispensing improvements; and perhaps most importantly on the hunch that there has been an evolution of the wine culture within the US market. The US wine drinker now understands that wine is not drunk only on special occasions, but as a beverage to be enjoyed socially and on a daily basis with meals. Wine need not be approached with reverence and pretense, but simply drunk and enjoyed. How it may be packaged is less important than if it is good quality, tastes good and is reasonably priced.

Furthermore, the technological advances made in processing, packaging and dispensing wines to be served on tap allow us in the wine industry to deliver wines of better quality and uncompromised integrity to this new and open minded consumer.

If you agree that the stage is set - that the consumer is now willing to support alternative packaging of wine including wines packaged in bulk for service on tap, then let’s address some key components that will insure product quality from the wine keg to this new consumer’s glass.

Sankey Keg Washing, Sanitizing, and Filling

We've all seen kegs around the cellar at the winery, they're commonly used for "breakdown", when quantities of wine less than a full barrel are held and used for topping off other barrels or small tanks. It makes sense that these same kegs can be used for serving wine in your tasting room or a favorite wine bar or restaurant. The kegs can be pressurized with nitrogen or argon, and dispensed from a stainless steel tap similar to draft beer. Then you can rewash the kegs at the winery, refill them and send them back to the restaurant, right? Not exactly, selling your wines this way will in the long term damage your hard earned reputation in the market as well as affect the sales of your cased goods.

Any good cellar hand can-- along with a simple keg valve dispense coupler modified with Tri Clover fittings, hoses and a pump -- wash and fill kegs at the winery. But would you send your wines out into the market in recycled bottles that were used over and over, and then filled by hand under less than sanitary conditions? Probably not, so why send those same wines into the market packaged in kegs that way?



Washing, sanitizing and filling kegs properly is one of the keys to maintaining the integrity of your wines in the Wine on Tap category. Quality control standards are just as exacting as those on a commercial bottling line; good standards are in place, thanks to the brewing industry. Kegs and their washing, sanitizing and filling systems have been designed together to ensure consistent, repeatable and effective results. Beer, by nature is more susceptible to spoilage than is wine, so by

utilizing their sanitary protocol we can expect to achieve a high degree of successful packaging of our wines in kegs. [IDD Processing and Packaging](#), located in Moorpark, California designs and builds state-of-the-art winery and brewery keg systems and along with [N2 Wines](#) of St Helena, California are leaders in the burgeoning Wine on Tap movement.

Inside a keg, there is a stainless steel spear (dispense) tube, which delivers the product through the keg valve. It is also used during the washing and sanitizing phases of the keg. The tolerances of this spear and valve were designed to accommodate specific pressures, flows, volumes and wash solution viscosities in order to provide a thorough wash pattern over the interior surfaces of the keg and the outer surface of the spear tube. These precise operations can't be duplicated accurately by a simple dispense coupler and a pump -- specialized equipment is used to wash and sanitize kegs fitted with a Sankey valve.

Once the keg has been washed, it is sanitized. Steam was used for sanitizing in the brewing industry until the early 1990's when the introduction of new direct food contact sanitizing products like [Oxine®](#) replaced it—minimizing occupational hazards and damage to rubber gaskets and O-rings in the kegs. The same design properties of the keg, spear, valve, water flow and pressures are utilized during sanitation, to sanitize the interior of the keg and its

valve and spear tube. To confirm successful cleaning and sanitation of the keg and the correct functionality of the keg washing and sanitizing system, well tried and proven [QA/QC Procedures](#) may be randomly carried out and spears may be occasionally removed and swabbed. After complete washing and sanitizing, the keg is purged with a sterile, filtered inert gas, counter pressurized, and is then ready to fill.

Aseptic filling ensures spoilage organisms cannot enter the product fill phase. When a keg is connected for aseptic filling, the exterior of the valve is sanitized prior to engaging and introduction of product. The clean and sterile keg is purged (evacuated) of air and counter pressurized, so wine enters the keg under a controlled filling speed without splashing or foaming; the product flow is shut off at a predetermined volume in the keg.

This method ensures that the keg is clean and sanitary -- prior to filling and the wine that goes into the keg is free of contaminants that could affect the integrity and shelf life of your product in the market.

Dispensing Wine on Tap at the Restaurant or Bar



So much of the success of the Wine on Tap category depends upon the on-premise operator, yet he may not be aware of the simple, but important concepts necessary to serve wine properly this way. Regardless of the attempt made by the winemaker to insure that his wine is prepped right, and packaged into clean and sanitized cooperage, it is all for naught if that wine is served from a poorly designed tap system.

The on-premise tap system requirements are simple, relatively inexpensive, and critical to maintaining the quality of wine served from the tap. The basic requirements are: 304 – stainless components (valve coupler, tubing nipples, and faucet), oxygen barrier tubing, and a blend of inert gas containing nitrogen or argon combined with carbon dioxide to push the wine through the system.

Burgstahler Machine Works, in St Helena, CA builds custom taps from 304 – stainless steel for dispensing wine and beer. [MicroMatic Systems](#) distributes oxygen barrier tubing for wine, as well as 304 stainless steel tubing connectors and couplers. Type 304 – stainless steel does not react negatively in the low pH environment of wines, and is the standard material used in winery fittings, tanks and kegs.

Oxygen barrier tubing with an EVOH layer is critical to dispensing Wine on Tap correctly, as several feet of tubing may lie between the keg and faucet. Polypropylene or vinyl tubing is microscopically porous, and as a result allows oxygen into the wine. Oxidation can occur within hours of wine contained inside poly or vinyl tubing.

One of the most important and sadly, most overlooked requirements of a proper wine system is the presence of carbon dioxide in the gas blend. After fermentation, wine is supersaturated with CO₂ and other gases. During the aging process, these gases, along with sulfur dioxide provide protection against oxidation in the wine. Eventually most of the gas dissipates, but a portion of the gas remains in the wine giving it important sensory characteristics. When commercial wines are bottled or packaged, they are done so with a carefully determined amount of dissolved CO₂ left in the wine, or adjusted to a level stipulated by the winemaker. Dissolved CO₂ in wine doesn't mean the wine is carbonated, we're talking about concentrations in the neighborhood of 400 ppm (parts per million) to 1,200 ppm. Wine doesn't seem "spritzy" below about 4,000 ppm, and Champagne is often around 7,500 ppm dissolved CO₂. What the dissolved gas does in still wine is give it liveliness on the palate, and it helps to elevate the aromatics. Dissolved gas is an important component of a well balanced wine.

Wine on Tap systems that use pure nitrogen or pure argon are not ideal for dispensing wine. There must be a percentage of CO₂ gas mixed with N₂ or Ar to maintain the dissolved CO₂ in the wine. This is especially important when dispensing red wines, because at warmer temperatures the gas in the wine comes out of solution faster. A red wine that loses its CO₂ can taste tannic and woody—it loses its fruit and aromatics. While this does happen in white wine, usually they are held and served colder and the gas tends to stay in the wine better.

In a partial keg, the head space is filled with gases among which are N₂ and CO₂. When the head space of the keg contains pure nitrogen, Dalton's Law of Partial Pressures contends that only the N₂ will be held in solution in the wine. The dissolved CO₂ will "boil" out of the wine and into the head space, causing a loss of dissolved CO₂ in the wine that remains in the keg. A Wine on Tap system which incorporates a blend of inert gases containing CO₂ will maintain that gas in the wine.

How much CO₂ should be used in the dispensing gas? It depends on the temperature of the wine and the pressure of the gas within the keg. Since we're dispensing wine under relatively low pressures, and assuming that the wines will not be served above 60° F, a readily available premixed gas of 75% N₂, 25% CO₂ works pretty well (this premixed gas is often used for Guinness and other nitrogenated ales). More elaborate systems involve units like the [McDantim](#) gas blenders which can be regulated so that the dissolved gases are optimized for temperature and pressure of a specific Wine on Tap system.

In summary, if the wine industry packages good quality wines in properly washed and sanitized stainless steel kegs, and the on-premise operator sells that wine using a quality standardized dispensing system to an open minded consumer who wishes to drink good wine every day at a great price – we've got a legitimate wine category with a long and sustainable future.

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