

**CASK-CONDITIONED BEER - AN OVERVIEW**  
**By Alex Hall of Wandering Star Craft Brewery**

*This is an extended version of the article I wrote for Union Beer Distributors  
([www.greatbrewers.com](http://www.greatbrewers.com))*

Cask-conditioned beer, known in the United Kingdom as 'real ale', is beer in its natural form before modern technologies changed the standard of how draft beer is kept and served. It is brewed from only traditional ingredients and allowed to mature and carbonate itself naturally with a secondary fermentation in the container it is dispensed from - the cask. The unfiltered, unpasteurized beer still contains live yeast, which creates a gentle, natural CO<sub>2</sub> carbonation and allows malt and hop flavors to develop, resulting in a richer tasting drink with more character and nuances than standard keg beers.

It is served without any extraneous gas, usually by manually pulling it up from the cellar with a simple pump affixed to the bar known as a beer engine (also known as a handpump or handpull). Only a few decades ago did chilled beer pushed by gas become normal everywhere. Optimum temperature is in the low 50s, known as 'cellar temperature' - below about 50F the yeast will go dormant. Cask-conditioned beer can also be served by gravity dispense straight from the tap.

The standard cask size is 10.8 gallons and is known as a 'firkin'. A cask of half the size is called a 'pin'. A cask of double the size is known as a 'kilderkin', rare in America but common in Britain where craft beer in kegs is unusual - but which recently has been 'kick-started' by American-style bars and is growing in popularity, much to the worry of CAMRA (The Campaign For Real Ale). The only place in the world where draft beer has continued to be served from casks through the ages is Britain, which has a proud brewing heritage that CAMRA has been defending since 1971. The only changes have been a switch from wood to steel (first largely aluminum and later largely stainless steel) last century, and now toughened plastic pins and firkins are being seen increasingly often.

Whichever material the cooperage is made of, the shape and fittings are the same. The large bung which, in serving position, is on the top is called a shive. The central part of the shive that gets punched through is called the tut. There are two types of peg that fit into the tut hole: a hard spile which is non-porous, and a soft spile which is porous and lets excess conditioning escape and also lets air in as the beer is being served. When the condition of the beer is at a good level, a hard spile should be inserted until the cask is required for use. A hard spile should also be inserted overnight when a part-full cask is not being served to prevent loss of condition unnecessarily.

Cask beers have to be manually vented and tapped, and left to settle or the customer gets a cloudy pint due to the presence of yeast and protein and possibly finings - clearing agents added at the brewery which need time to drag particles to the belly of the cask.

Cask beer is perishable so will start to taste of wet cardboard and ultimately vinegar if left in a part-full cask for too long. This is caused by acetic acid forming from a reaction with oxygen in the atmosphere - oxidation. This will start to become noticeable after about four

days for a standard ale, maybe a bit longer for something strong or heavily hopped. Shelf life can be considerably extended (up to three times as long) by a simple device called a 'cask breather aspirator'. This is a valve that connects to a CO2 bottle and regulator on one side, and on the other to a screw-in spigot that should be inserted in the shive and tightly connected. The gas regulator must be set to 4 or 5 PSI - no higher. For an investment of less than \$100, bars can protect themselves from having to waste beer if it oxidizes before the cask is empty. It also makes for less work as the different spile pegs are not required to be swapped over at opening and closing times.

Some people have the notion that cask beer is naturally "warm and flat". This is incorrect, it is served cool, but not chilled like keg beers - and should have a noticeable natural carbonation from the secondary fermentation in the cask. Look for the little bubbles which swirl around when you agitate your pint. If you don't see anything and the beer tastes flat, it has either been kept too cold so the yeast is dormant, or it has been left too long with a soft spile peg inserted and too much natural carbonation has escaped into the atmosphere. Also, I've heard the phrase "served at room temperature" uttered way too many times - would you keep your living room at 54F?

At the brewery, here is how a cask-conditioned beer is created. Just before the primary fermentation is looking to be complete, the beer is cooled to halt the actions of the yeast. Taking a sanitized cask, the brewer puts in finings if so desired (always done in the UK as clear beer is expected there, but not always in the US). Then, the cooled beer is racked into the cask (so thoroughly mixes with the finings) not quite to the top, and a small dose of some sort of priming sugar or unfermented wort is then added. The brewer needs to be skilled on this, too little and the beer may not properly carbonate, too much and there is a risk of either the shive or keystone flying out like a bullet due to excess CO2 buildup. A small headspace is good to help prevent against the latter. Then the cask is kept warm for several days - roughly 75F but a little variable depending on the yeast strain used. This is for the secondary fermentation to take place at the ideal temperature for the yeast to function. After a few days, the cask is cooled down to cellar temperature.

Sadly, it's a fact that a few places still don't exercise proper quality control; not cleaning pipes regularly or failing to pull off and throw away beer which has been sitting overnight in the beer engine's cylinder are common causes which can make an otherwise good beer come out tasting off or 'warm and flat'. The best, most traditional beer possible can easily become the worst if standards are not maintained. Anyone not used to real ale's true texture and correct serving temperature can easily get misled when sampling poorly-kept real ale - in all probability avoiding it in future under the assumption that all cask beer is supposed to be warm, flat, and generally unpalatable. A well-kept pint is cool, refreshing, and packed with a spectrum of malt and hop aroma and flavor and in my opinion is unbeatable.

Traditional serving position is on its belly with a slight tilt at the back. Do not overtilt as sediment will end up coming out. Casks can be tilted at the start or gently part way through, or automatically by a sprung frame. A modern invention called a 'widge' can also be employed for places short of space where the cask is positioned upright and beer is drawn from the top. Once in service, a cask must not be moved or disturbed.

Unlike kegs which are sealed at all times outside the brewery, empty casks have openings which should be sealed as soon as being pulled off the stillage. A cork stopper called a 'clip cork' should be inserted in the open keystone, and a spile peg firmly pressed into the shive. This is important, failure to do that will in no time create a fully functional maternity hospital for fruit flies and cockroaches. In the absence of a clip cork, seal it thoroughly with duct tape.

For a bar or restaurant to pump cask-conditioned beer, the following items are generally needed: a beer engine, tap(s), hosing of ½" inside diameter and ¾" outside diameter, hose clamps, nut-and-tail connector(s), hop filter(s), spile pegs, clip corks, a mallet with an ash wood or rubber head (2lb weight is best), stillage - either single wood or one built for multiple casks or a single steel self-tilting one (or widge otherwise), and whatever equipment is to be used for cooling. For the latter, you can use a saddle connected to a glycol pump, and insulate this with a ready made jacket. Alternatively, ice blankets with a jacket, or (best option) a walk-in box or refrigerator set to 54F, and there's a method of constructing an annex to the keg walk-in that lets in chilled air one side and room temperature air the other. A cask breather aspirator is optional (highly recommended though) - narrower hosing than the beer line will be needed. Depending on the design of stillage, wooden chocks may also be required.

The above list of equipment may at first sight look daunting but it really isn't, and it is so very much worth it to dispense and experience beer as it is historically meant to be. I highly recommend UK Brewing Supplies for most of those items - [ukbrewing.com](http://ukbrewing.com). Also, I can give advice where needed - [alex@wanderingstarbrewing.com](mailto:alex@wanderingstarbrewing.com). Cheers!