

Profit through Quality

A guide to cellar management
and beer dispense

Version 3



Foreword

A recent survey of the Beer Industry showed that beer accounts for 62% of all trade sales (AC Neilson).

Can you honestly say you are making the most of the opportunity to improve beer sales and your profitability?

Extensive research on customers who drink beer by Interbrew UK revealed the following:

- Customers walk away - 34% of consumers will go to a **different outlet** if quality is poor
- Customers order something else - 49% of consumers will **not order** the same drink if quality is poor
- Customers will pay for the best - 53% of consumers will **pay more** for a good quality product

It is the objective of this handbook to help ensure that your customers receive a Perfect Pint every time, by providing a set of standards to the industry on cellar management and dispense.

Research has proved that when you have this knowledge on the handling and serving of beer, sales can increase by 3% (British Beer and Pub Association) and yields improve by up to 7% (Cask Marque). It sounds so simple - and it is.

Learn more on how to improve Profit through Quality, and when you have the knowledge why not take the BIIAB Award in Beer and Cellar Quality qualification. (See Appendix 5)

Cheers!

Acknowledgement

This manual was prepared by:

- British Beer and Pub Association
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1. Profit Through Quality

1.1 Increase profits by improving quality

It's easy when you know how.

Reduce wastage caused by fobbing.

Did you know that filling one drip tray per day with waste beer is equivalent to almost £14,000 per year in 'lost' sales at £2.50/pint* in a typical ten tap account? Imagine how much money can be wasted due to fobbing caused by dirty lines, high cellar temperature and casks or kegs that have been on sale for too long.

Improve sales volumes by giving the consumer a Perfect Pint.

To calculate your losses at the drip tray look at the table at the back of this book (Appendix 1).

**Fobbing beer
wastes money.**



* 1.5 pints per drip tray @ £2.50/pint (RSP) @ 365 days per year

1.2 Seven simple ways to increase profits and improve beer quality

Reduce Line Cleaning Losses

	Leads to	Assume	Annual saving*
Having fewer taps on the bar	Lower line cleaning losses	Each line holds approx. 2 pints of beer	£250 per tap removed

Eliminate Fobbing

	Leads to	Assume	Annual saving*
Cleaning lines every 7 days following correct procedures	Elimination of fobbing caused by yeast build up in the beer lines (See section 6.1)	Saving one drip tray per day of fob per tap is equivalent to 1.5 pints	Approx £14,000 in a 10 tap account
Ensuring the cellar is at the correct temperature (11-13°C)	Reduction of fobbing caused by the beer being too warm or cold when it comes out of the tap (See section 2.2)		
Pouring the Perfect Pint	Less overspill (See section 10)		
Stocking keg brands that enable you to sell kegs within 5 days of putting on sale	Less gassing up and fobbing towards end of keg (See section 5.2)		
Turning gas off between trading sessions			

Reduce Cask Returns

	Leads to	Assume	Annual saving*
Stocking cask sizes that enable you to sell casks within 3 days of putting on sale	Prevention of cloudy and 'off' flavoured products being sold to consumers (See section 4.2)	Assume one 9 gallon container returned to brewery every 2 months per brand On 18 gallons per week sales this represents 5% wastage	£1,000 per brand

*at £2.50/per pint (RSP)

1.3 Achieve the upward quality spiral

Poor beer quality lowers your profits.

Why?

Poor quality leads to a downward spiral of falling sales caused by customer dissatisfaction, increased wastage, and lower profits:



Good quality leads to an upward spiral of satisfied customers, increased sales, decreased wastage and higher profits:



1.4 Product knowledge

Beer is an alcoholic beverage produced from water, malt and hops; and fermented with yeast. Different types of beer are produced using variations in brewing techniques. The term “beer” is a general description applied to four main beer types - ales, stouts, porters and lagers. Each brand has its own unique characteristics and can vary between different regions of the country. Until quite recently the majority of beer in Britain was **ale** and **stout** but since the 1970's, **lagers** have proved more popular and now over half the beer drunk here is lager.

ALE - Cask Conditioned (real ale) (racked in casks)

At the end of the fermentation stage beer still contains live yeast and a small amount of fermentable sugar. The beer is racked off into casks and finings are added to clarify the product. The beer then undergoes a secondary fermentation stage which builds up the CO₂ content. When this stage is finished the yeast settles to the bottom of the cask with the help of the finings. Real ale is a live product and requires special handling.

ALE - Brewery Conditioned (bright beer) (racked in kegs)

The beer is held cold (below 0°C) to allow the stabilisation and sedimentation of the yeast. The beer is then filtered to remove the remaining yeast and CO₂ levels are adjusted ready for packaging in bottles, cans or kegs. The beer then passes through a pasteuriser. There is normally no secondary fermentation in the package (with the exception of bottle conditioned beer).

LAGER - Brewery-Conditioned (racked in kegs)

The word “lager” means storage in German. Lager beer undergoes a maturation process of between one to two weeks in cold storage to stabilise the beer and develop flavour.

STOUT - (racked in kegs)

Dark, full-bodied and rich and is usually made from dark-roasted barley.

2. The Cellar

2.1 Cellar hygiene

It is essential to always keep the cellar clean and tidy.

Why?

A dirty cellar encourages the growth of wild yeast and bacteria which infects the beer, resulting in increased wastage and hazy, sour products that will be unfit for sale.

Under the Food Safety Act (1990) you can be prosecuted for dirty beer dispense equipment if customers are seen to be **at risk** from infection. No actual proof of infection is required.

DO

- Clean the cellar at least once every week, the best time to do this is before a delivery when there is less stock. Keep a record of when the cellar is cleaned and by whom, this can be shown to Environmental Health Officers to confirm good hygiene practice is being followed
- Clean up any spillage immediately, it's easy to slip on spilt beer and it acts as a source of infection
- Clean walls and ceilings regularly, get specialist advice if there is a problem with mould growth
- Control rat infestation in the cellar, their urine can transmit Weil's disease which has flu-like symptoms leading to serious illness
- Keep drains and sump pumps clean. Avoid sewage contamination.

DON'T

- Use strong smelling disinfectants to clean the floor as their odour will spoil cask products
- Store food in the cellar, it's not cold enough, is against food hygiene regulations and could contaminate the beer, it also encourages vermin
- Smoke in the cellar, it is illegal
- Leave cask taps soaking in water, the water will stagnate and infect the cask dispense equipment
- Allow animals into the cellar.



Drains should be kept clean. This example will be a source of infection

Fruit and vegetables should never be stored in cellars, their strong aromas will taint cask beer



Rubbish like this is an indication of a poorly run and unhygienic cellar

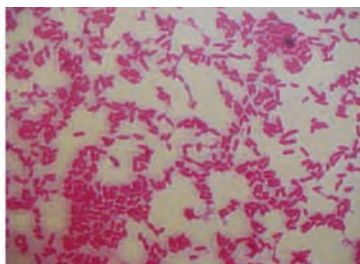
Spillages should be cleaned up as soon as possible



Types of micro-organism found in beer cellars, lines and dispense taps if hygiene procedures are not followed:



Wild yeast in dirty beer lines, un-cleaned drip trays and contaminated cellars results in fobbing and off flavours



Bacteria can produce vinegar or butterscotch flavours and hazy beer



Fungi, found on dirty cellar walls, keg couplers and glasswashers, will spoil beer and is a health hazard

2.2 Cellar temperature

It is vital that the cellar temperature is maintained at 11-13°C.

Why?

At **high** temperatures:

- Cask ale spoils quickly
- Cask ale 'conditions' rapidly (see section 4.5), initially causing fobbing but ultimately resulting in flat beer caused by loss of gas
- In keg beers the carbon dioxide expands resulting in fobbing
- In both cask and keg beers, flavour will be adversely affected.

At **low** temperatures,

- Cask ales can develop 'chill haze'
- Cask ales will take longer to 'condition'
- Keg beer will fob due to excessive absorption of carbon dioxide
- In both cask and keg beers, the flavour will be adversely affected.

Temperatures that are either too high or too low will increase wastage and significantly reduce the chance of serving the Perfect Pint.

DO

- Check the temperature every day, if it is below 11°C or above 13°C check that the cellar cooling equipment is working properly
- Have cellar cooling equipment routinely maintained by refrigeration experts
- Allow between one and two days for beer to reach cellar temperature after delivery, especially in extreme weather conditions
- Place the cellar thermometer out of direct airflow from the cooler to get an accurate reading.

DON'T

- Turn cellar cooling off to save money, it will cost far more in wastage due to fobbing
- Stack cases or boxes around the cooling equipment, it will use more electricity, interfere with air circulation and result in a warmer cellar
- Leave the door propped open (unless someone is working in the cellar) as this will allow warm air to flow in.



It is essential to check daily that the cellar temperature is between 11-13°C

VENTILATION

The cellar should be well ventilated as stale air can enter casks and make beer cloudy, but draughts should be avoided. Air shafts and bricks should be clear from rubbish and kept clean. Let fresh air circulate in the cellar for ten minutes a day. Poor ventilation can also lead to the build up of odours which can spoil cask ale.

3. Deliveries

3.1 Checking your delivery

Once a delivery has been signed for it is the customer's responsibility.

Why?

Legally, the brewery is not responsible for the contents of the keg or cask once outside its control. It is essential to check each delivery before it is signed for.

DO

- Check that casks have **at least 14** days and kegs **at least 20** days left for sale before the Best Before date printed on the container label, like any food product, beers sold after this date will start to deteriorate
- Carefully check the delivery against documentation, it is difficult to rectify mistakes once the delivery vehicle has left
- Ensure containers are returned to the owning brewer.

DON'T

- Accept overage or damaged containers, arranging uplift can be time consuming and may have health and safety implications
- Accept containers without labels or caps.

Carefully check your delivery for damaged or overage containers



3.2 Avoiding container damage

Container damage can lead to lost sales.

Why?

Availability of brands is vital to satisfy customer preferences. Customers may go elsewhere if their chosen beer is not available. If the last container of a brand is damaged it could take some days to get a replacement which could mean lost sales.

DO

- Ensure that access to the cellar is free of obstruction prior to delivery
- Ensure keg cushions and keg lifts/pulleys are installed and used where appropriate, this helps to prevent container damage.

DON'T

- Drop containers from any height onto the cellar floor without a cushion to prevent damage
- Leave containers outside the cellar, they will be too hot or too cold to dispense properly
- Double stack containers, it is a health and safety risk. If unavoidable due to lack of space, manual handling training will be required as part of the health & safety risk assessment
- Handle frozen containers, they are potentially dangerous (See section 12.5).



Use of a cushion reduces the number of leaking containers and damaged spears



Double stacking of containers is not recommended

When reporting a quality fault to the brewery, always quote the best before details and rack number. Do not accept kegs without a label

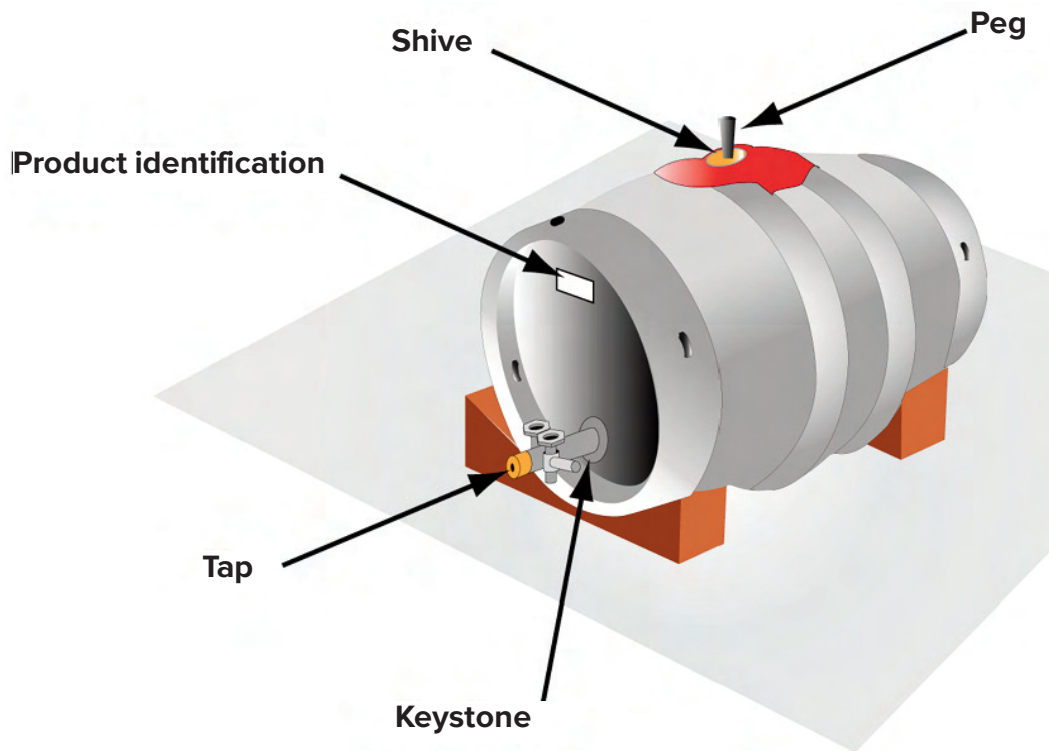
Rack number

3123456

Product ID

**BEST BEFORE
19 APR 08 J G**

4. Cask Ale



4.1 What is the difference between keg beer and cask ale?

Keg beer: Fermentation is completed in the brewery, where the beer is held cold (below 0°C) to allow the stabilisation and sedimentation of the yeast. This is followed by:

- Filtration, where suspended particles are removed
- Carbonation, where carbon dioxide is added
- Pasteurisation, which minimises the risk of infection.

This produces a bright beer with the correct level of carbon dioxide and good head formation.

Keg beer has a shelf life of over 45 days.

Cask ale: Secondary fermentation takes place in the cellar. This process is called 'conditioning' (see section 4.5).

Cask ale is not pasteurised or filtered and as a result has a shorter shelf life than keg beer. Also it is exposed to air while on sale, deteriorating more quickly than sealed keg beer.

For best results cask ale should be sold within 3 days of being connected.

Cask ale is a 'living' product and so it should be treated with extra care to obtain the Perfect Pint.

4.2 Stock control

Sell a cask within three days of putting on dispense.

Why?

Cask ales have a product life of up to 35 days from the date they leave the brewery. Once connected to the bar for serving they will deteriorate after 3 days due to exposure to airborne yeast, bacteria and oxygen in the cellar.

To achieve the Perfect Pint:

DO

- Manage orders of cask ales so that these containers can be sold within 3 days
- Use double cask taps (one container to two beer engines) to ensure containers are emptied more quickly
- Aim for a minimum stock level of 3 days to allow the beer to 'condition' (see section 4.5) and a maximum of 10 days to avoid the beer being sold after it's Best Before date
- Carry out stock rotation in the cellar, using the oldest stock first
- Remember the Upward Quality Spiral (see Section 1.3).



4.3 Storage

When selling cask ale, pay special attention to cellar cleanliness.

Why?

Cask ale is a 'living' product that can easily be infected with wild yeast and bacteria. Every time you pour a pint of cask ale, a pint of air is drawn into the cask. The dirtier the air, the quicker the beer will deteriorate. Cask ale that is spoilt will mean fewer sales and more wastage.

DO

- Dismantle and clean cask taps and vertical extractors (see Section 4.11) using a bottle or extractor brush in line cleaning detergent solution immediately after use so that all traces of yeast are removed, rinse with fresh water
- Do not leave cask taps soaking in water as this can cause infection, store in clean, dry, hygienic conditions
- Store pegs and hop filters in clean, dry conditions
- Keep the cellar and drains as clean as possible to avoid contamination, clean up any spillage immediately and clean the cellar thoroughly **at least** once a week
- Scrub clean autotilts and stillages weekly
- Circulate fresh air in the cellar for ten minutes a day, poor ventilation can lead to the build up of odours and mould which can spoil cask ale
- Keep the cellar at the correct temperature (11-13°C), ideally fix the thermometer out of direct airflow from the cooler, slightly away from the wall.

DON'T

- Store casks anywhere except a temperature controlled cellar
- Disturb casks once they are stillaged, the beer may not resettle properly and will become hazy
- Store fresh food in the cellar, it encourages the growth of wild yeasts that will result in spoilt beer.

Remember the Quality Spiral (see Section 1.3).

Clean cask taps and dip sticks with a bottle brush



Store cask components in a clean, dry environment – not in a bucket of stagnating water

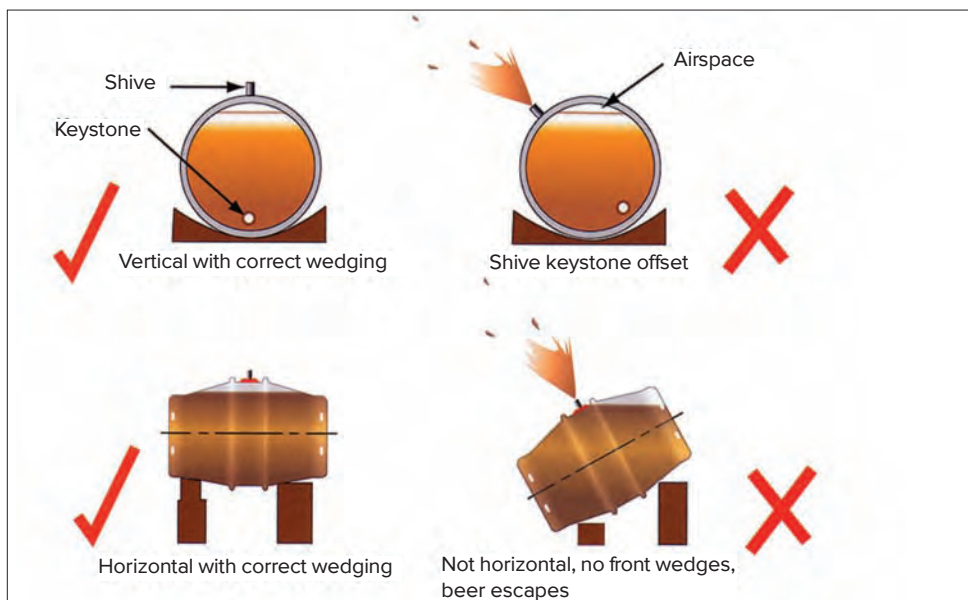
4.4 Stillaging

Cask ale must be stillaged level as soon as possible after delivery.

Why?

If you do not stillage level, the sediment will not settle properly and beer may escape from the peg.

Disturbing the cask after stillaging means the beer is unlikely to clear afterwards. If stillaging on delivery is not possible due to lack of space then roll the cask prior to stillage in order to redistribute the finings.



DO

- Stillage the casks immediately after they are delivered
- Position casks level with the shive and keystone, vertically aligned as shown, as beer will escape if this is not done
- Consider using autotilts (see section 4.10).

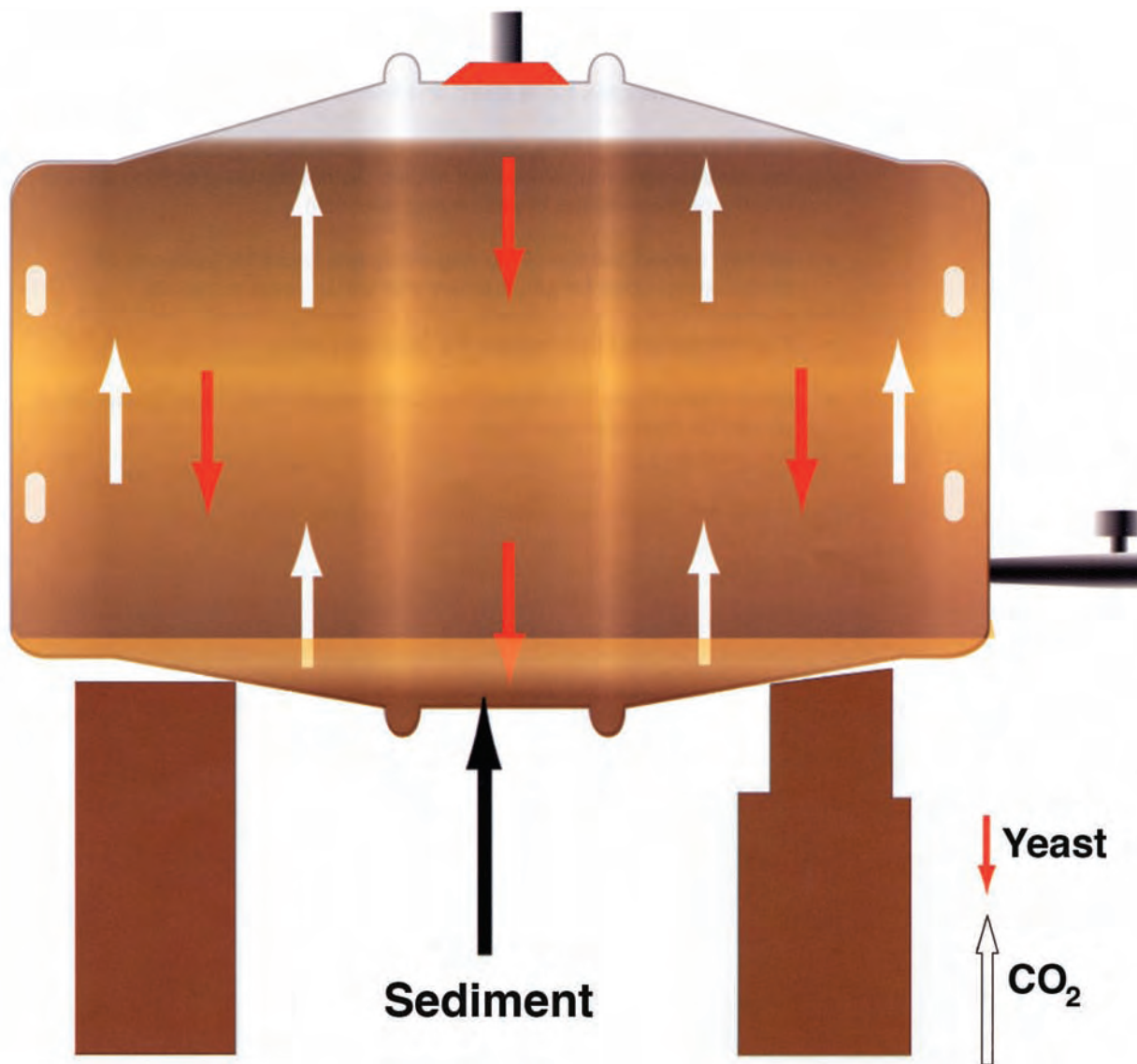
4.5 What is 'conditioning'?

Cask ale must be vented in order that it can be 'conditioned', but what is 'conditioning' ?

When the cask leaves the brewery it contains sugar and yeast. The yeast ferments the sugar into alcohol with carbon dioxide as a by-product. Some carbon dioxide escapes from the peg in the top of the cask (white arrows – see diagram on next page). The carbon dioxide that remains in solution gives the beer its bubbles and frothy head, also known as 'condition'.

Simultaneously, finings cause yeast and other suspended materials to clump together and settle to the bottom of the cask (red arrows) leaving bright beer. The sediment must not be disturbed once it has settled.

The process of 'conditioning' (also known as 'secondary fermentation') normally lasts for 3 days, depending on the brand of cask ale.



4.6 Venting and tapping

NB: Each type of cask ale has unique characteristics so please refer to individual brewers' procedures.

- Clean the keystone and shive thoroughly after stillaging, dirty equipment will contaminate the beer
- Carry out venting and tapping between 4 and 24 hours after delivery with a clean tap after delivery on all stillaged casks. (Note: in warm weather it may be necessary to allow a minimum of 24 hours before tapping and venting)
- Knock the sealing plug (tut) through the shive into the cask with a venting tool and insert a soft porous peg finger tight
- Check keystone is flush with the cask surface, if not, knock it in gently with a rubber-headed mallet

- Check that the cask tap is clean and free to operate
- Hold the tap horizontally, place it centrally on the keystone and drive it into the cask using a rubber-headed mallet, do not continue striking the tap when it is home as the keystone ring may split
- Inspect the top of the peg every few hours for evidence of conditioning, look for gas bubbles and waste yeast materials
- Check and replace the pegs frequently
- When a soft peg comes out clean, conditioning has ceased
- When conditioning has ceased, check beer taste, aroma and appearance
- Seal cask with a hard, non-porous peg inserted finger tight, to hold the beer in condition.

4.7 Putting on sale

Cask ale should be checked direct from the container before being put on sale.

Why?

This will avoid filling the line up to the bar with hazy beer.

Always:

- Check the beer from **every** cask before you put it on sale, cask ale is a 'living' product and each cask has to be judged individually
- Gently remove the peg and draw a sample into a clean glass, check for clarity, aroma and taste
- Ensure a clean hop filter, or tap washer, is in place before screwing the beer pipe into the cask tap to finger tightness, note: hop filters are specially important when beer is 'dry hopped'
- Draw the beer through a **clean** beer line to take a sample at the bar, check again for clarity, aroma and taste
- Remove the hard peg before the trading session, failure to do this results in a vacuum forming in the cask when the hand pump is used, disturbing the sediment and giving rise to hazy beer
- Replace the hard peg and close the cask tap between sessions, this stops air getting in and infecting the beer
- Put the lines in a bucket of fresh, clean water and flush up to bar when changing a cask, this prevents yeasty sediment from being drawn into the line up to the handpull
- Once the cask is empty, seal with corks provided.

NB: Never filter back. This will result in infection of good, new beer. Any 'gains' will be lost from increased wastage caused by fobbing and sour tasting products.

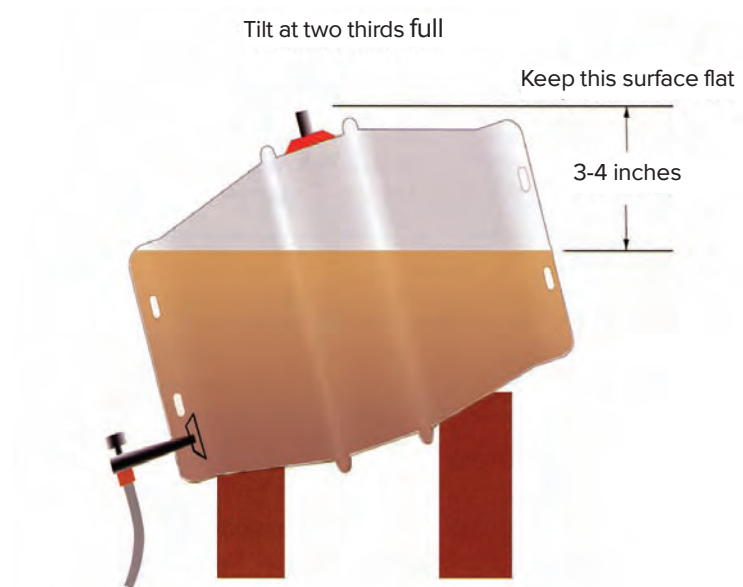
4.8 Tilting

Because the cask has to be level during conditioning to allow the sediment to settle, it is necessary to tilt the cask in order to secure all the saleable product.

Incorrect tilting will result in increased wastage and lower profits.

Why?

Tilt the cask too much and the sediment will block the tap and yeasty beer could end up in the customer's glass. Tilt too little and good beer will be left below the level of the tap after the cask has been sold.



DO

- Tilt by about 20 degrees, this means the back should be higher than the front by 7cm (3 to 4 inches)
- Tilt while the cask is at least two thirds full so as to minimise disturbance
- Tilt at the end of the trading session in order to allow sediment to resettle.

DON'T

- Tilt when the container is nearly full or nearly empty.

4.9 Summary of cask beer handling



Stillage level on delivery



Vent and tap within 24 hrs



Replace soft peg frequently until conditioning stops then use hard peg



Sample **before** putting on sale



Tilt when 2/3 full



Clean cask taps and dipsticks

4.10 Autotilts

Autotilts automatically tilt the container while it empties. They are a labour-saving way of dispensing cask ale which can also cut down wastage and increase profits.

- Ensure that the autotilt is set up correctly, in particular the balancing mechanism, which varies by container size, refer to manufacturer for specific instructions
- Clean autotilts when changing a cask, using water and a hard brush. This prevents slime accumulating, which could infect the beer. It also decreases the risk of corrosion to the tilt mechanism.



To avoid infection of cask beer, scrub clean every time cask is changed

Placing a cask on the autotilt



4.11 Vertical extractors

Casks dispensed through vertical extractors are stillaged upright and therefore this method is recommended where space is at a premium, but:

- Extra care and attention is essential to maintain hygiene where the extractor is difficult to clean
- This method of dispense is more complicated than horizontal stillaging
- Yields may tend to be lower because the end of the cask has a smaller surface area than the side, so there is less opportunity for sediment to settle and compact efficiently.

Broaching (See diagram on next page)

Place a 2.5cm (1 inch) wedge under the cask to tilt the beer away from the keystone. All casks must have an extractor shank fitted with a blank nut driven through the keystone 4 to 24 hours after delivery.

Venting

Excess pressure must be vented from all casks by opening the vent valve in slow, gradual steps until fully open.

More controlled venting is achieved by inserting a new, clean, soft peg into a short piece of cleaned PVC pipe connected to the vent valve. The tube must rise upwards to avoid siphoning and should end in a clean container on the cask top. It should be removed when on sale.

Preparation for Dispense with a Vertical Extractor

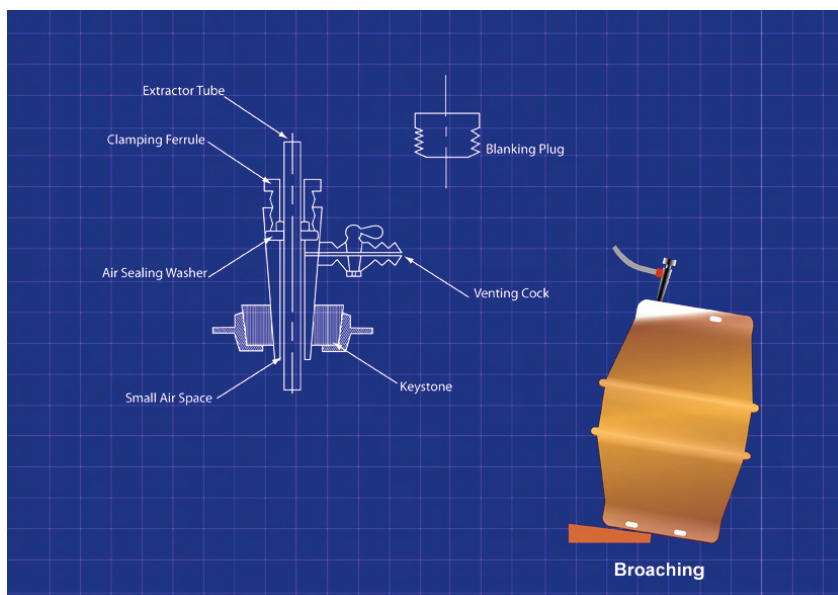
When the excess pressure has been vented, remove the blank nut from the shank and insert a clean extractor tube until it touches the bottom of the cask. Withdraw 2.5cm (1 inch) and lock in position.

Always remove the wedge from under the cask (when cask is a minimum of two-thirds full) and replace on the opposite side of the cask to tilt the beer towards shank/keystone, taking care not to disturb the sediment.

Always close the vent and beer valve at the end of each session.

Note: When required, insert a clean hop filter between tap and beer pipe.

Never handle the area of the extractor tube that comes into contact with the product.



5. Keg Beer

5.1 What is Keg Beer?

Keg beers and lagers are different from cask ale.

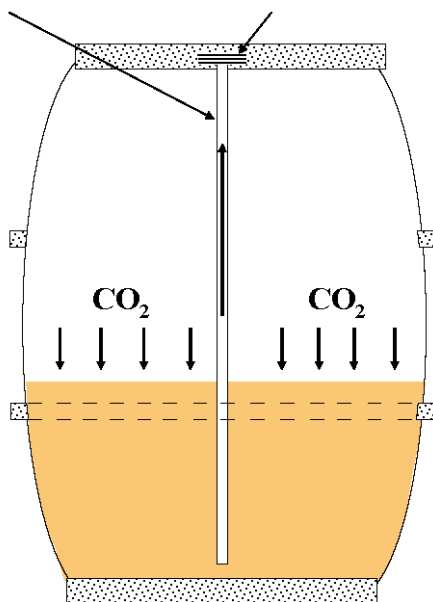
Why?

The yeast in keg beer is removed at the brewery so there is no need for 'conditioning' (see section 4.5) to take place in the cellar.

Keg beers are pasteurised, packaged and stored under carbon dioxide. This means that they are less prone to infection from air-borne micro-organisms, giving a considerably longer shelf life of at least 45 days, in comparison with cask ale, which only keeps for up to 35 days. Keg quality and outlet profitability can be increased still further by following some simple procedures.

How a keg works:

Spear operation – dispense gas pushes the beer through the spear system stem up to the keg coupler



5.2 Stock control

Sell a keg within 5 days once connected up to sale.

Why?

Once connected, keg beer will maintain its quality for up to 5 days. After this it will start to gas up, resulting in fobbing and excessive wastage.

To guarantee that all containers are sold within 5 days it is important to have the right amount of brands on the bar and use the appropriate container size.

As a general principle, 'less is more', the fewer brands on the bar, generally the better the product quality. Line cleaning losses are also lower.

Remember the Quality Spiral (see Section 1.3).

DO

- Manage orders of keg beer so that each keg can ideally be sold within 5 days
- Aim to have a minimum stock level of 3 days to allow the beer to adjust to the cellar temperature and a maximum of 10 days to avoid the beer becoming overage
- Where possible have one keg supplying up to 3 taps and not one keg per tap. This ensures that containers are emptied more quickly and there is less chance of fobbing at the end of the keg. If in doubt contact Technical Services for advice
- Consider the use of 'dummy' fonts, which will reduce line cleaning losses and increase throughput per tap, these can help to fill the bar area but are for display purposes only and remain disconnected
- Ensure kegs are sold by their Best Before date as detailed on the container, old beer will develop off flavours
- Carry out stock rotation in the cellar, using the oldest stock first.

DON'T

- Store kegs outside the cellar, especially in very warm or cold weather. This can cause fobbing or flat beer. Remember it can take up to 2 days for the kegs to reach cellar temperature
- Stack containers on top of each other as it is a health and safety risk and could also result in container damage. If unavoidable due to lack of space, manual handling training will be required as part of the health & safety risk assessment.

5.3 Changing a keg

When disconnecting or connecting a keg, never place your head above the spear.

Why?

The container is under high pressure and should be treated with respect. If you think a container or spear is faulty you should always call Technical Services.

Disconnecting a keg

- Switch off gas supply
- Lift handle upwards then turn coupler one-third anti-clockwise (if appropriate)
- Remove coupler from spear
- Check coupler inside and out to make sure it's clean, working properly and the sealing washer is intact.

Connecting a keg

- Check the spear for any damage
- With the coupler lever in the **vertical** position, place onto the spear, allowing cams to locate
- Turn one-third clockwise (if appropriate)
- Push the handle down and allow the spring to locate into the locking lug, the handle should now be **horizontal**
- Switch on gas supply and check for leaks.

NB: There are a number of types of keg couplers in use but all operate on similar principles.

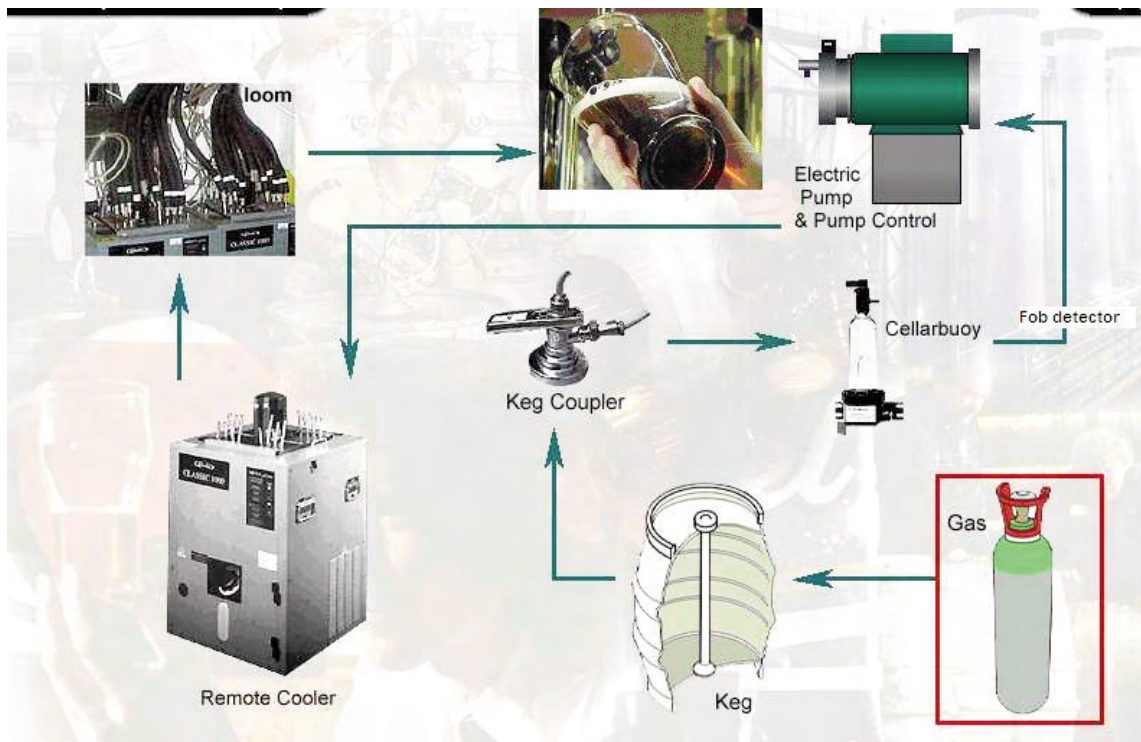
Check which connector goes with which coupling before attempting to connect.

- Remember to turn the gas supply **off** at the main reducing valve after each session otherwise gas will be absorbed into the beer, causing fobbing and increased wastage. There is also less risk of gas leaks.

Placing a coupler
on the spear



5.4 Product dispense systems

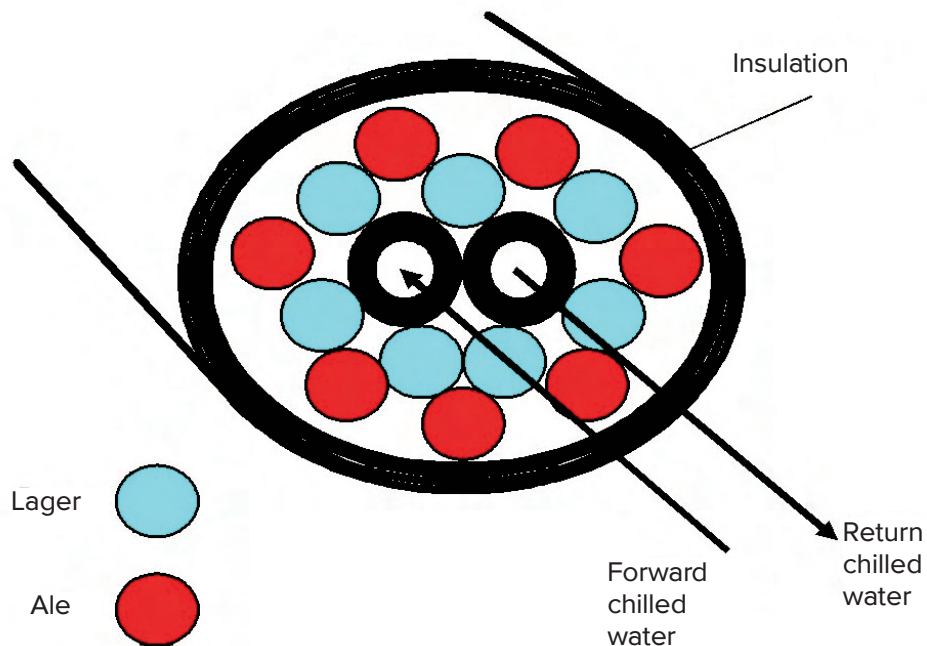


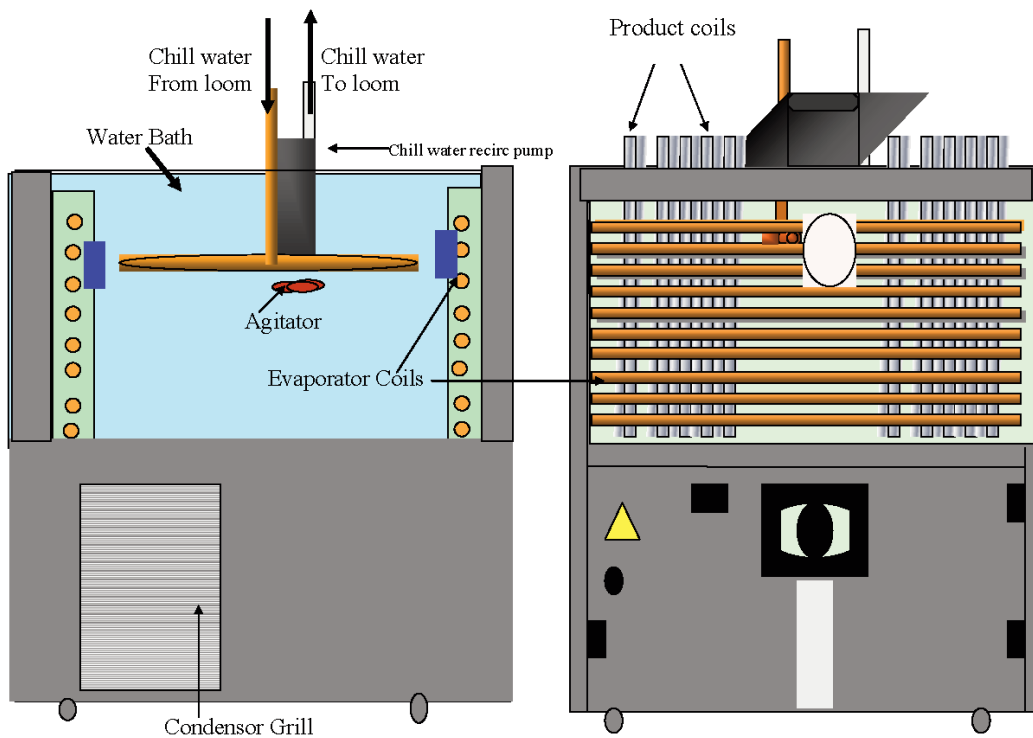
Product dispense systems should not be altered or modified.

- Carbon dioxide (CO₂), mixed gas from cylinders or a gas generation system is used to push beer out of a pressurised keg through the keg coupler
- Fob detectors are non return valves that stop the beer emptying out of the line up to the bar when kegs are changed

- When there are long runs from the cellar to the bar for a particular brand, electric or gas pumps can be fitted
- Keg lagers and sometimes keg ales are fed through a remote cooler, which is a bath of near freezing water or an under counter cooler
- Systems to dispense extra cool products are being developed, which may involve an under counter and remote cooler
- Keg and cask products run through the loom (sometimes called a python), which is a cooled jacket, up to the bar
- Where there is a low ambient temperature and a short run, cask ale can sometimes run straight from the cool cellar to the bar without going through the loom. For longer cask runs a dedicated ale python cooler may be required.

Cross section of a loom – colder products next to chill water lines





5.5 Glycol cooling system

Glycol coolers are refrigeration units which cool a reservoir containing a blend of food grade antifreeze (propylene glycol) and water.

A remote cooler with an ice bank of water alone can only chill draught products down to 5-8°C - hence the reason for secondary (or 'flash') coolers which are normally installed under the bar counter and are used for extra cold products.

Glycol cooling can bring the dispense temperature down automatically to 2-4°C, which is ideal for extra cold or 'super chilled' products.

If glycol cooling is installed it requires a new cooler and a new python.

The temperature the beer is chilled down to is set by the manufacturer or the technician when installing.

Typically a glycol coolers reservoir is made up of 25-30% mono propylene glycol and 75-70% water.

5.6 Cooling equipment

If the remote cooler has insufficient water in it or breaks down, all the lagers and most other keg beers will fob.

Why?

Remote coolers operate by passing beer in stainless steel pipes through a chilled water bath which is set at close to freezing.

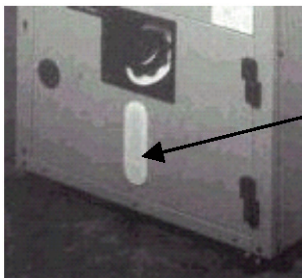
If the water bath heats up due to a fault in the refrigeration system, the beer will be warm when it reaches the bar, causing serious fobbing problems. Therefore:

DO

- Top up the water level in the remote cooler to ensure coverage of cooling coils, under-counter cooler water levels should also be checked regularly
- Clean dust and fluff from the grill on the front of cooling units, this helps the unit to work more efficiently and use less electricity
- If applicable, monitor the ice bank in the chill water bath, especially during busy sessions, if there is no ice present call Technical Services (glycol coolers will not have an ice bank)
- Monitor glycol levels on split units.

DON'T

- Obstruct the airflow to the cooler by stacking cases around it, lack of airflow to the unit will result in warm beer.



Glycol level



Regularly check the water level

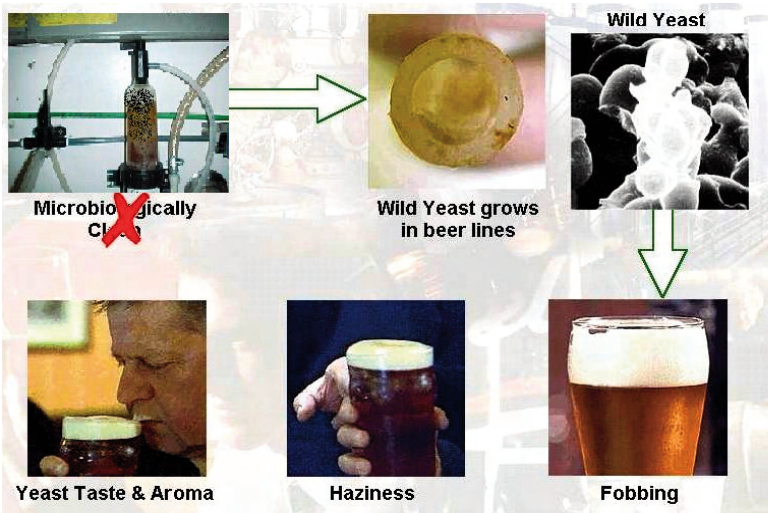
5.7 Product temperatures in glass

Extra cold products	1 - 5°C
Lager and cider	5 - 9°C
Keg ale and mild	6 - 12°C
Traditional cask	9 - 15°C
Chilled cask	7 - 11°C
Bottled beer	4 - 6°C
Stout	5 - 9°C

These temperatures are only a guide. It is expected that all brand specifications will fit within these ranges but if in doubt, consult the individual brewer's specification. They will vary with throughput.

6. Line Cleaning

6.1 Line cleaning recommendations



Clean lines at least every seven days following the correct procedures

Why?

If lines are not cleaned every 7 days wild yeast and bacteria infection will result in fobbing beer and increased wastage.

The beer may also taste of yeast or vinegar and appear hazy. Any money saved as a result of cleaning lines less frequently than once every 7 days will be far outweighed by losses due to increased wastage.

Also, beer losses from line cleaning can be offset against tax.

Remember that one drip tray of fob per day is equivalent to approx £14,000 worth of beer a year in a 10 tap account.

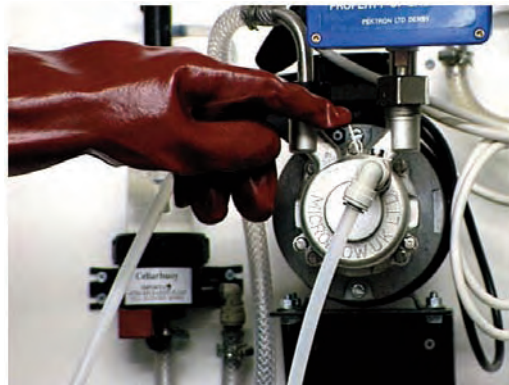
The frequency of line cleaning is very important but it is also about:

- Following the correct procedures
- Using good quality line cleaning fluid.

Make sure to wear protective gloves and goggles



Bleed off fob detectors



.....and electric pumps, where fitted, to avoid yeast build up in 'dead legs'



A sure sign of poor line cleaning is the presence of dirty fob detectors

6.2 Line cleaning procedures

Some general points to remember:

DO

- Make sure that:
 - Bar staff are aware that line cleaning is taking place
 - Protective gloves and safety goggles are worn as required by COSHH regulations because line cleaner is a corrosive substance (see Section 12.3).

- Always add cleaning fluid to water, not the other way round and, use it at the recommended dilution rate
- Never mix chemicals
- Clean the keg coupler seals and cleaning sockets with a brush and diluted line cleaning fluid, followed by a water rinse (these items do not come into contact with detergent during line cleaning)
- Remove tap nozzles, orifice plates and sparklers **before** line cleaning (for fast detergent flow), soak and rinse in clean water, replace on the correct tap otherwise the beer will not dispense properly
- Select the back action position on the tap for several seconds during the cleaning cycle, this prevents yeast build in the tap mechanism
- Flush through both pump bleed valves (on electrical pumps where fitted) and fob detector, before, during and after cleaning, collecting liquid in a suitable container. This is where yeast and detergent gets trapped
- Pull detergent through at least 3 times during the process of line cleaning, or as per manufacturer's instructions, flushing fluid through is the only way that yeast build up can be removed
- Make sure that all the detergent is flushed away at the end of line cleaning by flushing through with a minimum of 8 pints of water, for very long pipe runs this may need to be increased, even small amounts of detergent will make the beer taste 'medicinal'
- Leave unused lines charged with water and clean weekly, stagnant water left in lines for longer than this will lead to infection.

DON'T

- Leave detergent in lines, leaving to soak for more than 2 hours will make the beer taste 'medicinal', the beer lines may also need replacing
- When topping up the cleaning bottle, do not use non-food grade hosepipe, as this can lead to a risk of tainting the beer with phenolic (cabbage) flavours
- Use over-strength detergent, this will also taint the beer lines with a 'medicinal' flavour
- Leave water in cleaning bottles between cleans, it will stagnate and become infected. There is also a risk that any line cleaning fluid present will react with the plastic container and weaken it. Don't leave in direct sunlight as bottles may be weakened by UV rays
- Re-use diluted detergent from a previous clean or beyond its best before date, it quickly loses its effectiveness
- Use non-recommended 'cheap' line cleaning fluids, any money saved will probably be lost through increased fobbing and beer wastage, beer quality will also be adversely affected.

If, despite closely following all the recommendations above, you are still experiencing problems with dirty lines, then call Technical Services for advice.

It's worth keeping a record of who cleaned the lines and when it was carried out. This can be shown to Environmental Health Officers to confirm good hygiene practice is being observed in the outlet.



1. Switch off gas supply



2. Fill the cleaning bottle with clean cold water and connect keg couplers to cleaning sockets



3. Switch on gas supply to cleaning bottle and flush beer from cellar buoy with fresh water



4. Flush beer from line



5. Following manufacturer's instructions, add cleaning fluid to the cleaning bottle



6. Refill the cellar buoy with cleaning solution



7. Pull cleaning solution through to each tap (avoid cleaning more than 4 taps at any one time)



8. Allow cleaning solution to soak in the lines for 10 minutes, pull fresh solution through each line



9. After a further 10 minutes, pull fresh solution through each line



10. Always clean keg coupler with a brush and cleaning solution, remember to rinse well with copious amounts of fresh water



11. After 30 minutes, prepare to rinse the line with fresh water. Rinse cleaning solution thoroughly and refill with clean cold water. Remember to turn off the gas supply before disconnecting bottle



12. Flush cleaning solution from cellar buoy and line with copious amounts of fresh water



13. Reconnect couplers to kegs



14. Turn on gas supply



15. Refill cellar buoy with beer and pull through to the bar

7. Bottled Beer

Although bottled beers are seen as the easiest product to store and serve, it is crucial that shelf life, temperature and presentation guidelines are followed.

DO

- Carry out stock rotation in both the storage area and the chiller cabinet, failure to do this will lead to stock going out of date
- Give the bottles or cans enough time in the refrigerated cabinet to reach the correct serving temperature (depending on your equipment, this could be anything between 8-24 hours)
- Make sure the chiller temperature is between 4°C and 6°C
- Clean bottles or cans and place on shelves with the brand name facing out.

DON'T

- Put new stock in front of old
- Store outside in areas where it could get extremely cold (freezing bottles can break), near heat or in direct sunlight (sunlight rapidly impairs flavour).

Small pack products are often consumed direct from the bottle or can and therefore scrupulous hygiene is essential.

8. Hygiene

8.1 Bar hygiene

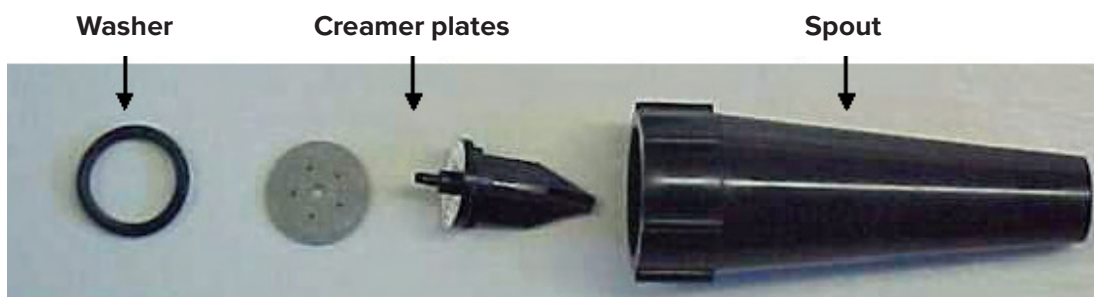
Maintaining hygienic standards behind the bar is essential.

Why?

Beer is classified as a food and the handling of it should conform to the Food Safety Act 1990.

DO

- Regularly clean glasses and glass racks to ensure they remain free from dust and dirt
- Remove orifice plates and spouts from taps (where fitted) every day, clean thoroughly in fresh water, **remember to replace on correct brand** otherwise flat or fobbing beer will result
- Where spouts cannot be removed, immerse them in clean water, again, this needs to be done every day to stop infection building up, especially in warm weather.



8.2 Personal hygiene

It is a legal obligation to report any staff illness, especially vomiting, diarrhoea and skin complaints to the relevant manager.

Why?

Food Safety Regulations require that food handlers must maintain a high level of personal cleanliness and presentation. In all cases, hand to mouth contact through eating and smoking must be avoided. If it is suspected that staff might transmit disease, they must not be allowed to work behind the bar.

DO

- Wash hands before coming on duty, frequently whilst on duty and **always** after visiting the toilet, cleaning ashtrays or collecting glasses
- Cover all cuts with a bright blue, waterproof dressing
- Report any illness to the line manager.

DON'T

- Eat behind the bar.

9. Glass Washing

The consequences of poor glasswashing:



9.1 The importance of glass washing

Unclean glasses will cause customers to drink elsewhere.

Why?

Greasy, non-rinsing films on the inner surface of the glass will result in a flat, lifeless beer. Quality product straight from the brewery and an excellent cellar and dispense system will count for nothing if the beer is poured into a dirty, cracked and chemically contaminated glass. A glass that is not disinfected can pose a health risk of saliva borne diseases such as hepatitis.

To guarantee the Perfect Pint glasses must be:

- Visibly clean
- Free rinsing
- Free from harmful bacteria (especially round the lip area)
- Cold.

DO

- Ensure that a clean, dry glass is used for each drink served
- Ensure that there are sufficient glasses to allow adequate drying time
- Store glasses in cool, dust free conditions on a ventilated surface.

DON'T

- Refill a glass, as it is unhygienic and spoils beer quality
- Stack glass on glass
- Store inverted on smooth impervious surfaces
- Use perfumed detergents, laundry treatments or polishes
- Wash drinking glasses with other items such as crockery, cutlery, ashtrays, or bar equipment.

The presence of grease, too much or the wrong sort of rinse aid, will result in a flat pint



Bubbles on the inside of the glass is a sure sign of poor glasswashing

9.2 Different glass washing methods

There are three methods of washing drinking glasses.

Washing by hand

Washing is carried out in a double sink or a bowl within a sink. The unused sink or the gap around the bowl is for the disposal of drink residues and rinse water. Each glass should be washed in hand hot water with a recommended detergent product. After rinsing in fresh, running water, leave to drain.

- Ensure that the detergent is specifically formulated for hand washing drinking glasses
- Ensure that a supply of clean or disposable cloths or sponges is available
- Replace the wash water when it becomes soiled, cool or loses its foam.

Washing by brush machine

The glass is plunged 2 or 3 times into a system of fixed or rotating brushes which are submerged in a dilute solution of detergent. After rinsing in fresh running water, leave to drain.

- Make sure empty drink residues are thrown away
- Use a recommended low foaming detergent
- Soak the brushes and washbowl in a detergent/sterilizer solution overnight to sanitise and de-grease the system
- Ensure that the machine is clean and has an adequate supply of detergent before use.

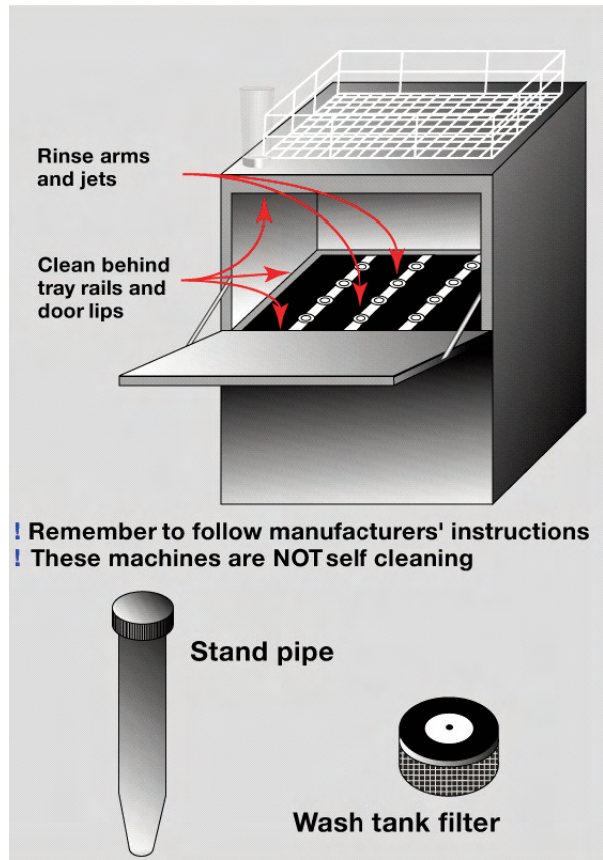
Washing by cabinet machine

There are two types of cabinet machine, those which recycle the wash water and those which replace it after each cycle. The water in recycled wash machines must be drained manually by removing a stand pipe at the end of each working day or when the wash water becomes heavily soiled. Operational needs are otherwise similar.

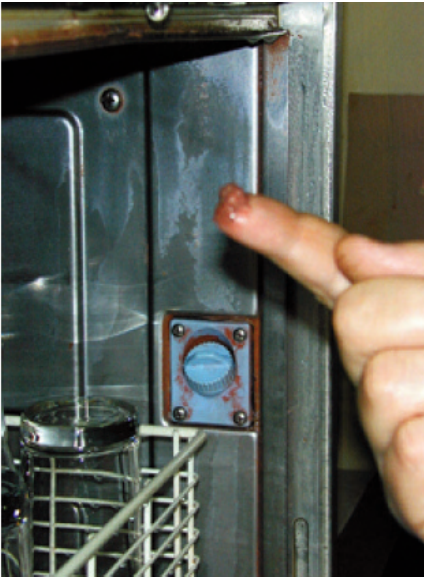
- Remove lipstick smears from glasses before placing in the washing machine
- Ensure that the wash and rinse tanks always reach their operational temperatures before use, typically 55°C (wash) and 65°C (rinse), note: wash cycle temperatures that are too high will result in permanent damage to the appearance of glasses, giving them a bluish tinge around the lip area
- Use only detergent and rinse aid products specifically formulated for cabinet glass washing machines
- Rinse glasses that have been used to serve cream based drinks, before placing in the washing machine
- Ensure machine is maintained regularly by the supplier
- Check the level of detergent and rinse aid in the containers on a regular basis and ensure that they are correctly connected to the machine
- Check rotating arms to ensure that they spin freely
- Make sure the machines are cleaned daily, ensuring that the filters are cleaned and spray jets cleared of any blockages
- Make sure the filters and spray jets are dismantled and cleaned weekly
- Allow at least 30 minutes drying and cooling time before using cabinet washed glasses
- Leave the door of the machine open at the end of the working day, closing the door on the cabinet will encourage the growth of micro-organisms.

DON'T

- Wash ashtrays or crockery in the glasswasher
- Wash crystal ware in cabinet machines
- Wash drip trays or other non-glass items in the glasswasher
- Wash glasses in water above 65°C because it spoils their appearance.



Run your finger
around the inside lip
of the machine



Deposits of pink mould indicates build up of infection, this machine urgently needs dismantling and cleaning thoroughly



Never put coffee cups in a glasswasher, the fatty residues from milk destroy the beer's head

9.3 Glass 'renovation'

Renovation is important.

Why?

Brand new glasses are covered in residues from the manufacturing process. If glasses do not rinse freely then residues have not been removed by routine cleaning treatments.

Follow the rinse test (see diagram overleaf).



Renovation deals with the symptoms of poor glass washing, not the cause. If glasses are continuously renovated they can be damaged. Under these circumstances call out a specialist glass washing engineer.

Renovation treatment can be applied in the following ways:

- Soak the glass in a diluted renovate solution and rinse with clean water
- Double wash the glass in a recycled wash water machine followed by a manual rinsing in fresh water
- As a special programme in a 'wash water replacement' machine.

In all cases follow the manufacturer's instructions.

10. Pouring the Perfect Pint

10.1 Benefits of pouring the perfect pint

Pouring the Perfect Pint is the last stage of the brewing process - it's at this point that all the hard work of the brewer and the publican can be ruined by dirty glassware and incorrect pouring techniques. The good presentation of your products encourages customers to return for more.

It is worth monitoring the volume of wastage caused by incorrect pouring technique. Less wastage due to overspill and a Perfect Pint being dispensed every time will improve profit margins. (see Section 1.1).

DO

- Use a clean, undamaged glass for every order, follow recommendations on glass washing (see Section 9)
- Where possible, ensure that glasses display appropriate branding, research indicates that most customers prefer branded glassware and it significantly improves product presentation
- Use nucleated glasses to ensure good head formation
- Hold the glass at the base during pouring, avoiding contact with the brim
- Make sure that the customer has a proper measure. Industry good practice is that 95% of the volume of a pint is liquid, with the head accounting for no more than 5%, equivalent to about 10mm depth (just under $\frac{1}{2}$ an inch). There may be regional customer preferences and you should always try and satisfy customer requirements. If a customer requests a top-up you must oblige
- Store glasses upside down on sheets of plastic lattice, this allows fresh air to circulate within the glass.

DON'T

- Refill a used glass, for two reasons:
 - It's unhygienic, bacteria from customer's saliva will be passed to the tap spout
 - A used glass suppresses the release of gas bubbles, reducing head retention and making the beer appear lifeless.
- Use warm glasses straight from the glass washer, beers will fob if the glass is warm
- Use glasses that are still wet inside, the beer head will collapse rapidly
- Store wet glasses upside down on hard surfaces because the trapped moisture generates unpleasant smells and off flavours.



Store glasses upside down on sheets of plastic lattice, these allow fresh air to circulate within the glass



Using hot glasses straight from the glasswasher will result in fobbing and excessive wastage

10.2 Dispensing the perfect pint of lager



1

Glass must be cool, clean, dry and undamaged. Where available use a correctly branded glass. Hold base of glass at a 45° angle just below tap.



2

Make sure tap does not touch glass. Open tap fully in one smooth action and allow lager to flow down the side of the glass.



3

Straighten glass gradually as it fills, ensuring spout remains above surface of head. Aim for no more than 10mm deep head.



4

Place on a drip mat, bar towel or counter with the brand logo facing towards the customer.

10.3 Dispensing the perfect pint of keg ale (including creamflows)



1

Glass must be cool, clean, dry and undamaged. Where available use a correctly branded glass. Hold base of glass at a 45° angle just below tap. Make sure tap does not touch glass.



2

Open tap fully in one smooth action and allow beer to flow down the side of the glass. Straighten glass gradually as it fills ensuring the spout remains above surface of head.



3

For creamflow products, rest glass and let beer settle. Allow 2 mins, refer to brand owner's specifications. Top up if necessary. Aim for no more than a 10mm deep head.



4

Place on a drip mat, bar towel or counter with the brand logo facing towards the customer.

10.4 Dispense the perfect pint of cask (long spout or bottom fill)



1

Glass must be cool, clean, dry and undamaged. Where available use a correctly branded glass. Hold glass vertically under spout with sparkler touching bottom of glass.



2

The pump should be pulled smoothly with sparkler kept on bottom until glass is full.



3

Allow to settle. Top-up as necessary, keeping sparkler below head. Aim for no more than a 10mm deep head.



4

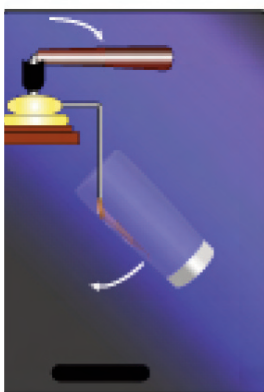
Place on a drip mat, bar towel or counter with the brand logo facing towards the customer.

10.5 Dispensing the perfect pint of cask (short spout or top fill)



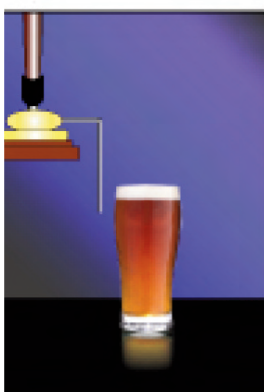
1

Glass must be cool, clean, dry and undamaged. Where available use a correctly branded glass. Hold base of glass at a 45° angle just below sparkler or spout.



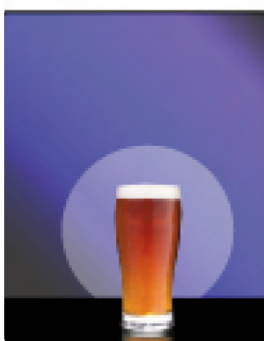
2

Make sure sparkler or spout does not touch glass. Pull handle smoothly and steadily (keeping the sparkler or spout above the beer) for each complete stroke, gradually straightening glass as beer rises, until foam reaches brim of glass.



3

Don't pull the handle in short, quick steps as the beer will not be dispensed any faster and overspill will result. Aim for no more than a 10mm deep head.



4

Place on a drip mat, bar towel or counter with the brand logo facing towards the customer.

10.6 Dispensing the perfect pint of stout



1

Glass must be cool, clean, dry and undamaged. Where available use a correctly branded glass. Hold base of glass at a 45° angle just below spout.



2

Make sure spout does not touch glass. Pull tap and begin pouring until glass is $\frac{3}{4}$ full. Turn tap off rapidly.



3

Settle for 1-2 mins. Fill to top of glass and aim for a head as per the brand owner's specification.



4

Place on a drip mat, bar towel or counter with the brand logo facing towards the customer.

10.7 Pouring the perfect bottled beer (brand owner instructions will vary)



1

Glass must be cool, clean, dry and undamaged. Where available use a correctly branded glass. Hold bottle so neck is about 10mm above glass.



2

Pour beer down the side of the tilted glass. For good hygiene the bottleneck should not touch glass rim or beer.



3

Hold glass by lower half so no finger marks are left where the customer will drink from. At $\frac{3}{4}$ stage begin to straighten glass while continuing to pour.



4

Place on a drip mat, bar towel or counter with the brand logo facing towards the customer.

11. Fault Finding

Dispense quality problems are normally caused by easy to solve faults.

Use the table to help identify the appropriate action.

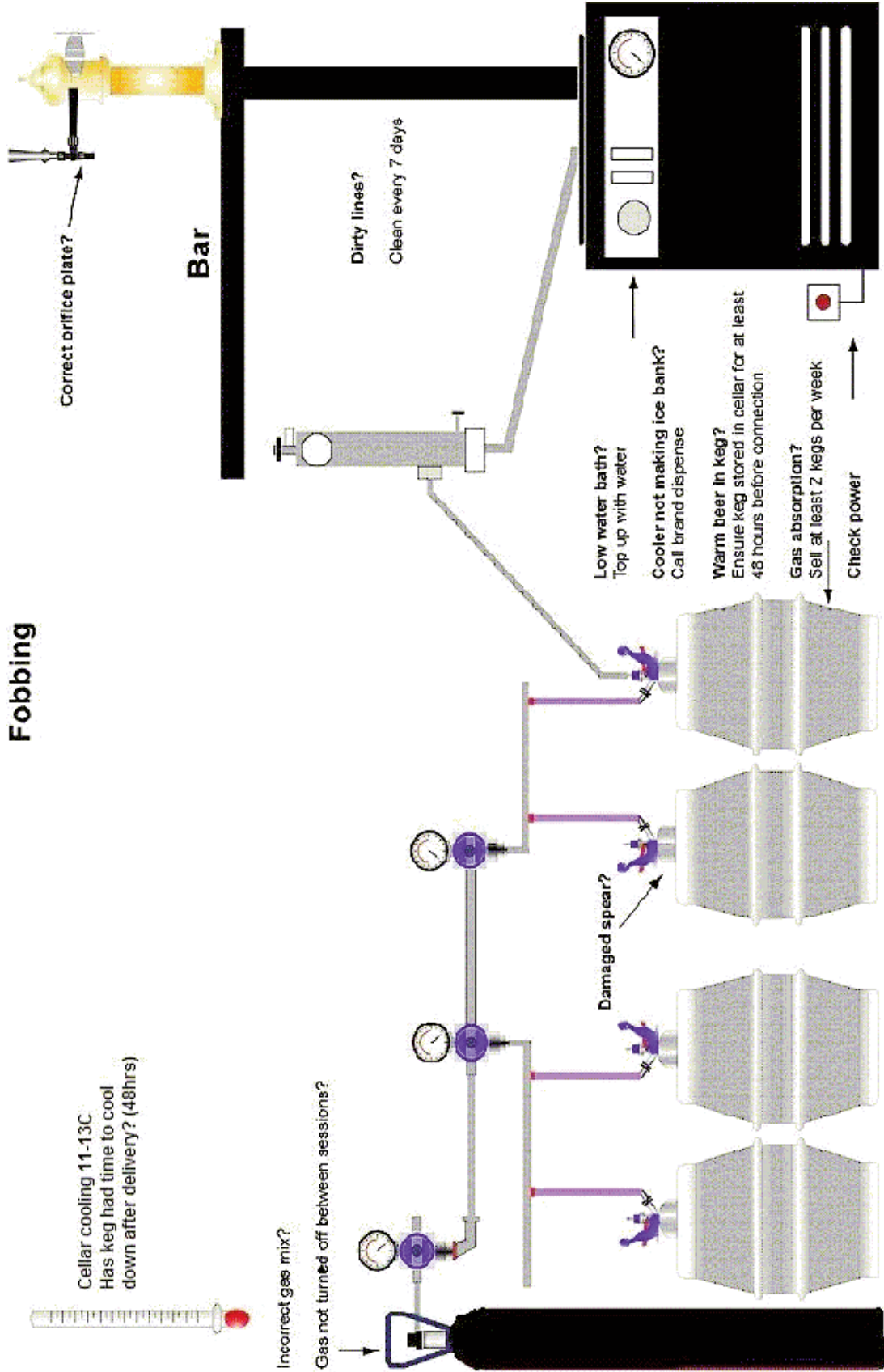
KEG	Dispense Problem	Possible Fault
	No beer at dispense	<ul style="list-style-type: none"> • Keg empty • Damaged spear • Blocked orifice plate • Sparkler too tight • Gas cylinder empty • Gas valve turned off • Gas supply failed • Kinked gas line • Stuck fob detector float • No electricity • Remote coil frozen • Keg connector coupling faulty
	Taste	<ul style="list-style-type: none"> • Dirty beer lines (not cleaned properly every 7 days) • Line cleaning solution not flushed or left in line too long • Product past best before date • Incorrect dispense temperature • Dirty glassware • On sale too long
	Fobbing	<ul style="list-style-type: none"> • Dirty beer lines (not cleaned properly every 7 days) • Cellar temperature outside the range of 11-13°C • Remote cooler not working (check power supply) • Damaged spear • Incorrect gas mixture • Incorrect orifice plate • Dispensed too quickly or glass not held at correct angle • Keg on sale longer than 5 days • Gas not turned off between session • Hot glasses out of glasswasher • Keg connector coupling faulty
	Flat	<ul style="list-style-type: none"> • Cellar temperature outside the range of 11-13°C • Damaged spear • Incorrect orifice plate • Dispensed too slowly or glass not held at correct angle • Incorrect gas mixture • Wet glasses • Glasswasher not working properly (incorrect rinse aid or greasy glasses) • Keg connector coupling faulty

CASK

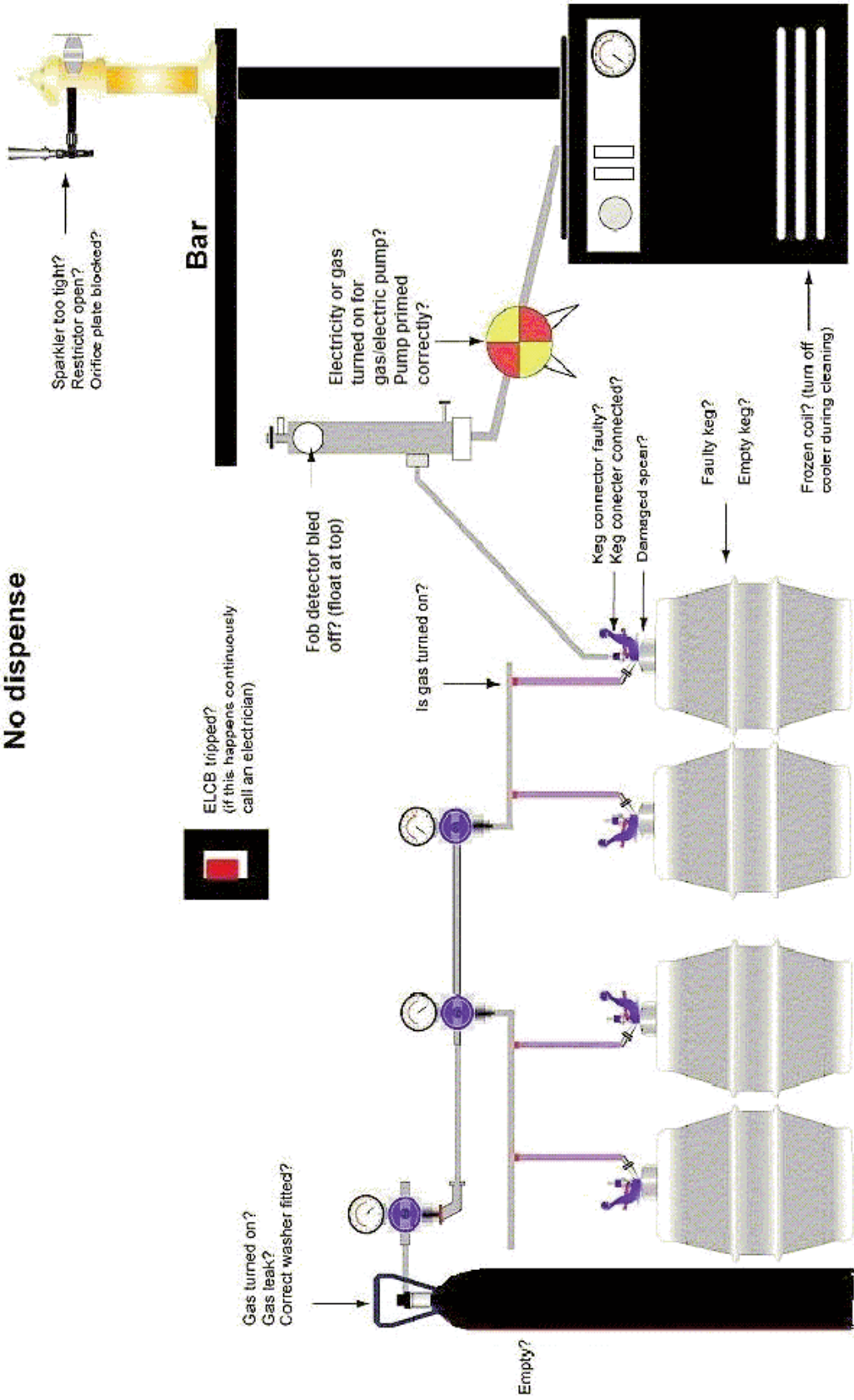
Hazy	<ul style="list-style-type: none">• Dirty beer lines (not cleaned properly every 7 days)• Product past best before date• On sale too long
No beer at dispense	<ul style="list-style-type: none">• Cask empty• Cask tap turned off• Vent peg not removed or too tight• Air lock in line• Blocked hop filter• No gas to gas pump (if fitted)• No electricity to electric pump (if fitted)• Stuck fob detector float (if fitted)
Taste	<ul style="list-style-type: none">• Longer than 3 days on dispense• Dirty beer lines (not cleaned properly every 7 days)• Dirty and/or warm cellar (causing rapid infection)• Incorrect dispense temperature• Traces of line cleaner in lines• Product past best before date
Fobbing	<ul style="list-style-type: none">• Insufficient conditioning• Dirty beer lines (not cleaned properly every 7 days)• Kinked beer line• Cellar temperature outside the range of 11-13°C• Dispensed too fast
Flat	<ul style="list-style-type: none">• Rapid conditioning due to high temperature• Over conditioned• Cask not hard pegged between sessions• Dispensed too slow• Longer than 3 days on dispense• Cellar temperature outside the range of 11-13°C• Glasswasher not working properly (incorrect rinse aid or greasy glasses)
Hazy	<ul style="list-style-type: none">• Longer than 3 days on dispense• Cellar temperature less than 11°C (chill haze)• Cellar temperature greater than 13°C (beer spoilt)• Dirty beer lines (not cleaned properly every 7 days)• Dirty cellar (causing rapid infection)• Over tilting• Incorrect venting process or conditioning process• Hard peg not removed during service• Cask disturbed• Product past best before date• Cask accidentally disturbed

For further advice on cellar standards and serving quality cask and keg beer, visit www.cellardoctor.co.uk

Fobbing



No dispense



12. Safety

12.1 Legislation applying to the storage and handling of beer

Beer is classed as food.

Why?

It is covered under the Food Safety (General Food Hygiene) Regulations 1995, which makes it illegal to:

- Allow mould, sewage or infected food to contaminate the cellar
- Use dirty dispense equipment, glassware or generally dirty premises for the purposes of selling beer
- Not report any staff illness, especially vomiting, diarrhoea or skin complaints to the relevant manager.

12.2 Gas safe handling

Gas cylinders are dangerous if not handled correctly

Why?

- Internal pressures are extremely high, up to 3000 psi
- The cylinders are heavy and if dropped could fracture a limb
- Carbon dioxide gas (CO₂) or mixed gas that escapes from faulty dispense equipment can kill.

Any leakage in confined areas can be dangerous and should be reported immediately.

CO₂ is heavier than air and it will sink to the bottom of the cellar, displacing oxygen. Lengthy exposure to CO₂ will result in asphyxiation (inability to breathe).

The symptoms can be alleviated quickly by breathing in fresh air.

If you think there has been a leakage of CO₂ in the cellar – do **not** enter or stay in it. Let air circulate around the area immediately.

DO

- Secure cylinders firmly in the upright position while in use, with brackets or straps, if a cylinder falls there is a high risk that it will cause injury
- Store cylinders horizontally and wedge securely when not in use
- Ensure that the correct washer is used between the high-pressure hose and cylinder, otherwise gas will leak
- Keep cylinders away from heat, hot gas increases in pressure and this could result in a gas leak
- Only use brewery or gas supplier recommended equipment
- Display gas safety health and safety information in the cellar
- Buy food quality standard gases from reputable suppliers.



Gas cylinders secured firmly in the upright position, unchained gas cylinders have been known to break a leg or arm

DON'T

- Try to connect a gas cylinder directly to a beer container, the container is not designed to take the pressure and it will explode and could kill someone
- Attempt to adjust dispense pressures, only Technical Services can do this
- Drop or throw cylinders, any damage could cause gas leaks
- Tamper with the valve fittings on the cylinder
- Transport gas cylinders by car, in the event of an accident they could rupture and flood the vehicle with CO₂
- Touch a frosted cylinder, frosting indicates there could be a leak in the system
- Accept any damaged cylinders.

12.3 Control of Substances Hazardous to Health (COSHH)

Misuse of cleaning chemicals can cause serious injury.

It is a legal requirement that all members of staff involved in handling and using chemicals must be aware of, understand, and follow the manufacturer's COSHH instructions. Make sure COSHH information sheets are available for each detergent used. You can contact your supplier for details.

DO

- Wear protective clothing, goggles and gloves where appropriate
- Use approved detergents and follow the manufacturer's instructions regarding dilution and handling
- Add concentrate to water – doing the reverse can result in severe burns
- Store cleaning chemicals in their original containers and **always** out of children's reach
- Rinse measuring vessels immediately
- Ensure that COSHH reference materials are accessible as these will tell you what to do in the event of an accident involving chemicals.

DON'T

- Use empty beer containers for cleaning beer lines
- Put detergents into containers intended for other purposes, especially cups and glasses
- Mix chemicals.

12.4 Electricity in the cellar

Electrical appliances must always be installed correctly and should include a Residual Current Detector (RCD).

Why?

A Residual Current Detector (RCD) is a circuit protection device fitted as a safety measure against electric shock.

DO

- Switch off portable beer pumps in cellars before washing the floor, beer pumps should be on stands well clear of the floor
- Switch off the power supply to any equipment when changing a fuse, **always** use the correct fuse
- Familiarise yourself with the contents of the Electrical Shock Treatment poster in the cellar
- Investigate immediately any fuse or RCD that blows repeatedly, there is a short circuit somewhere in the system.

DON'T

- Touch electrical equipment with wet hands
- Leave cables where they can be damaged by being walked on or knocked when moving goods
- Use multi-socket adaptors in the cellar, They can become easily overloaded making them a fire hazard.

Use of multi-socket adaptors in wet cellar conditions is dangerous



Refer to the BBPA Electrical Safety Code of Practice for further information.

12.5 Frozen kegs

Frozen kegs are dangerous

Why?

Freezing beer releases gas that increases pressure. There is a risk that the spear may shoot out of the keg which is very dangerous. Full kegs should never be stored outside or where it is very cold.

If you suspect that a keg is fully or partially frozen:

DO

- Cover the top of the container with a blanket or tarpaulin
- Call Technical Services
- Allow the keg to thaw slowly
- Ensure that the keg is clearly marked and that all staff are aware of it.

DON'T

- Try to connect to the dispense system, the beer will be undrinkable, containing neat alcohol which is toxic
- Lean over the top of the keg, the spear could shoot out under high pressure
- Try to move the keg.

Appendix 1

Wastage Beer Calculator

Wastage in £s per year (£2.50 per pint, one drip tray holds 1.5 pints)

		Drip trays of beer wasted per tap									
		1	2	3	4	5	6	7	8	9	10
Taps on bar	1	1369	2738	4106	5475	6844	8213	9581	10950	12319	13688
	2	2738	5475	8213	10950	13688	16425	19163	21900	24638	27375
	3	4106	8213	12319	16425	20531	24638	28744	32850	36956	41063
	4	5475	10950	16425	21900	27375	32850	38325	43800	49275	54750
	5	6844	13688	20531	27375	34219	41063	47906	54750	61594	68438
	6	8213	16425	24638	32850	41063	49275	57488	65700	73913	82125
	7	9581	19163	28744	38325	47906	57488	67069	76650	86231	95813
	8	10950	21900	32850	43800	54750	65700	76650	87600	98550	109500
	9	12319	24638	36956	49275	61594	73913	86231	98550	110869	123188
	10	13688	27375	41063	54750	68438	82125	95813	109500	123188	136875
	11	15056	30113	45169	60225	75281	90338	105394	120450	135506	150563
	12	16425	32850	49275	65700	82125	98550	114975	131400	147825	164250
	13	17794	35588	53381	71175	88969	106763	124556	142350	160144	177938
	14	19163	38325	57488	76650	95813	114975	134138	153300	172463	191625
	15	20531	41063	61594	82125	102656	123188	143719	164250	184781	205313
	16	21900	43800	65700	87600	109500	131400	153300	175200	197100	219000
	17	23269	46538	69806	93075	116344	139613	162881	186150	209419	232688
	18	24638	49275	73913	98550	123188	147825	172463	197100	221738	246375
	19	26006	52013	78019	104025	130031	156038	182044	208050	234056	260063
	20	27375	54750	82125	109500	136875	164250	191625	219000	246375	273750

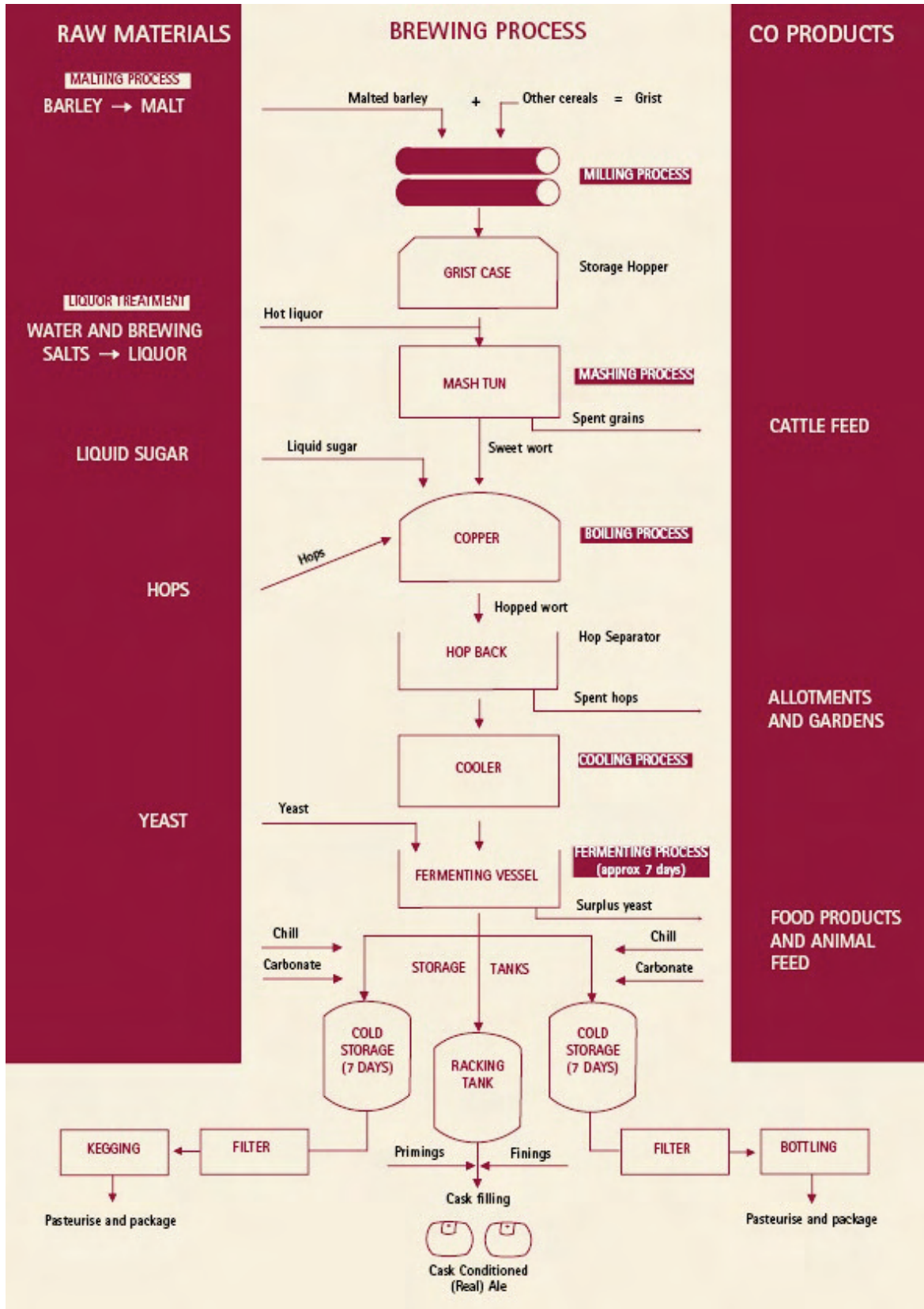
Appendix 2

Cellar Design Tips

- Ideally cellars should be large enough to take the equivalent of 10 days stock. However, if this is not possible, it may be necessary to reconsider delivery patterns
- Where possible, sufficient space should be available to stillage all cask ale on delivery
- Heat-generating equipment such as freezers or icemakers should not be installed in the cellar unless absolutely necessary. They can raise the cellar temperature, overload your cellar cooling equipment and cause problems with beer cooling. This could mean fobbing beer, increased wastage, poor quality, and increased electricity costs
- Consider that during winter the cellar temperature can drop below 11°C. The installation of cellar heating helps regulate the temperature and with a dual thermostatic control avoids cooling and heating coming on at the same time
- Wherever possible a cellar cooling evaporator should not be placed adjacent to or pointing at a door, otherwise warm air will be sucked in
- Insulation is extremely important. A poorly insulated cellar will not maintain the correct temperature or be economical to run
- Drainage should be as high a standard as possible, ideally with the floor sloping to a central drain or sump with no areas where puddles could develop. If the cellar is below drainage level a sump pump should be installed
- For health and safety reasons do not discharge drainage from the bar sink to the cellar floor
- Where possible, floors should be non-slip and constructed to withstand the damage which may be caused by falling kegs
- Steps to the cellar should be adequately lit and provided with a handrail
- Ideally, walls and ceilings should have a smooth water-resistant finish capable of being washed down and this should be decorated with a paint containing fungicidal additive. Care should be exercised when using paints as their odour may taint cask ales
- Use vapour proof lighting.

Appendix 3

The Brewing Process



Appendix 4

Useful Trade Organisations



RAISING STANDARDS IN LICENSED RETAIL

The BII is the professional body for the licensed retail sector. It is the fastest growing organisation within the sector and has a growing membership of over 17,000 members. It is committed to helping its members run successful businesses, who are widely respected as being among the most professional licensees in the industry. Eligibility for membership is based on qualifications and experience.

"...the terrific benefit package that is now offered makes membership almost a requirement for licensees whatever their pub style." Suzanne Nolan FBII, The Great Escape, Somerset

For more information on membership

Phone 01276 684449

E-mail membership@bii.org

Web www.bii.org



AWARDING QUALIFICATIONS for LICENSED RETAIL

BIIAB is wholly owned by the BII and is the dedicated awarding body for the licensed retail sector. It is nationally accredited by the Qualifications and Curriculum Authority (QCA) and is the leading provider of qualifications for the sector. Training and qualifications are available for all staff, from bar staff through to licensees and managers.

With a national network of over 1,000 approved centres (colleges of further and higher education, pub/brewery companies, and independent training organisations) accessing training has never been easier.

"The licensed retail sector is a highly competitive market environment. BII qualifications are vital to help new and experienced licensees gain a competitive edge." Ted Tuppen FBII, Chief Executive, Enterprise Inns plc

For more information on qualifications

Phone 01276 684449

E-mail qualifications@bii.org

Web www.biiab.org



The BBPA is the UK's leading trade association for the brewing and pub industries. Through its members companies, the Association represents 98% of beer production and over half of the 58,200 pubs in the UK. It produces industry guidance and technical circulars on a range of topics, including health and safety, COSHH and gas in confined spaces, which are available to BBPA members and non-members. For further details, visit www.beerandpub.com

Beautiful Beer



In the spring of 2005, the UK beer and pub industry launched a new programme to revitalise the image of beer. The campaign, called Beautiful Beer, is spearheaded by the British Beer & Pub Association (BBPA).

Beautiful Beer is an 'umbrella' brand for a range of activities that encourage more consumers to make beer their drink of choice on more occasions. It has been built on three key platforms: driving up beer quality and standards in the on trade; educating and enthusing the trade and consumers about beer, and a PR programme to communicate a new image of beer to consumers.

A pilot beer quality in 2004 proved that training licensees and pub staff in beer quality leads to an uplift in beer sales. The pilot was delivered with Cask Marque, the British Institute of Innkeeping (BII) and Beer Academy in around 340 pubs. Pubs taking part in the pilot scheme, which received training on cellar management, beer dispense and beer appreciation, achieved significant improvements in beer quality and increased beer volumes by an average of 3%, (volume sales July-October 2004 vs. July-October 2003, in 170 test pubs compared to 168 control pubs).

In addition to improving the quality of beer in the on-trade, the Beautiful Beer programme is also working to change consumers' image of beer. Research carried out at the planning stage revealed consumers' perceptions of beer, compared to other alcoholic drinks. The programme is based on the findings, seeking to capitalise on beer's perceived strengths – natural ingredients, sociability, quality – while closing the gap on other drinks, especially wine, in other areas, such as drinking with food and health benefits.

For more information on the programme, visit www.beautifulbeer.com



What is Cask Marque?

Cask Marque is an independent non-profit-making organisation, funded by both brewers and retailers which recognise the excellence in the service of cask ale. The award is made to the licensee and not the pub, and the achievement can increase cask ale sales. To the consumer it is a badge of quality and the outlet will be promoted through free local pub guides and the Cask Marque website www.cask-marque.co.uk

Cask Marque are also pleased to be the sponsors of the CAMRA Good Beer Guide and if your outlet is included our logo will be placed alongside your entry.

How does it work in practice?

Once you have agreed to join the Cask Marque scheme an independent Assessor will visit your outlet unannounced twice in a three month period. The Assessor will check for temperature, appearance, aroma and taste on all your cask ales on sale.

Once you are accredited, the licensee will receive:

- a plaque to fix outside your premises
- a certificate to display in the bar
- advertising material to tell your customers about the award.

Further inspections are made twice a year and in addition random inspections make take place during the year. Your customers will be able to comment independently to Cask Marque on the quality of the cask ales on sale and we do welcome their feedback.

Training

Cask Marque now offer a national training package based on the new BII Qualification in Cellar Management. This is a one day course and research has shown that sales can increase by 3% and yields by up to 7% by adhering to the course content...

For more information on Cask Marque and Cellar Management Training look at our website www.cask-marque.co.uk or telephone on 01206 752212.

"Good cellar management is the key to serving cask ales in their prime. Cask Marque will be invaluable to customers, retailers and brewers alike." Anthony Fuller, Chairman of the Independent Family Brewers of Britain.

Appendix 5

BIIAB Award in Beer and Cellar Quality

The Award in Beer and Cellar Quality (ABCQ) is a nationally recognised qualification specifically designed for licensed hospitality operations, awarded by BIIAB. The Profit Through Quality handbook can be used as support material for the course and examination.

The ABCQ is designed to be delivered in one day, and will allow trainers to develop and deliver hands-on practical training and assessment in a cellar environment, followed by a multiple choice examination.

The Award will help:

- ensure beer is consistently served in an optimum condition, which in turn will
- increase beer sales, and
- decrease beer wastage.

To support candidates and tutors, BIIAB has structured the qualification into learning outcomes and assessment criteria. The learning outcomes define the knowledge required and the assessment criteria define the areas that are tested in the examination.

The Profit Through Quality handbook contains all the knowledge needed to pass the examination. The ABCQ examination lasts 45 minutes and consists of 30 multiple choice questions drawn from the assessment criteria. In order to pass the examination candidates must answer at least 23 out of 40 questions correctly.

For businesses which do not offer cask beer products, there is a 'keg only' version of the examination, which consists of 25 multiple choice questions and excludes material directly relating to the caring for and serving of cask-conditioned products. In order to pass the examination candidates must answer at least 19 out of 25 questions correctly.

See Appendix 6 for the learning outcomes and assessment criteria and Appendix 7 for specimen questions.

Appendix 6

ABCQ Learning Outcomes and Assessment Criteria

Subject	At the end of the session candidates will be able to:
1. Understanding beer products and the business benefits of dispensing beer correctly	1.1 Outline the characteristics of the main types of beer 1.2 State which products are brewery/cask conditioned and whether delivered in kegs or casks 1.3 State the business benefits of serving beer correctly 1.4 State the key requirements for a 'perfect pint'
2. Outline how to maintain personal and food hygiene in the bar area	2.1 Explain how the Food Safety Act 1980 applies to beer 2.2 Outline the basic procedures for cleaning spouts and taps on the bar 2.3 State the key personal hygiene standards that apply to the bar
3. Explain how to maintain, clean, and store glassware	3.1 State key hygiene standards for glass washing 3.2 Explain how and why glassware should be handled hygienically 3.3 Outline different glass washing methods 3.4 Describe how to use glass washing equipment correctly 3.5 Explain the reasons and methods of renovating glassware
4. Describe how to dispense the 'perfect pint' of draught lager, beer and stout	4.1 Describe generic principles for presenting a 'perfect pint' 4.2 State the in-glass service temperatures for the various beers 4.3 Describe the procedures for pouring a 'perfect pint' 4.4 Identify and outline how to rectify problems with dispense of keg and cask beer products
5. Explain how to maintain a safe and effective cellar	5.1 Explain how cellar hygiene affects beer quality and why beer should not be filtered back 5.2 Explain how current legislation impacts on cellar hygiene 5.3 State how to maintain cellar hygiene 5.4 State optimum cellar temperature and explain how temperature affects profitability and beer quality 5.5 State how and why a cellar should be ventilated 5.6 State how to store gas cylinders safely 5.7 State how to handle and connect gas cylinders safely 5.8 State the importance of cleaning lines 5.9 Explain the procedures for cleaning and maintaining lines
6. Outline the process of conditioning and describe how to maintain and dispense cask ale	6.1 Explain the process of cask conditioning 6.2 Explain how to tap and vent a cask before putting it on sale 6.3 State reasons for and explain the process of stillaging 6.4 State reasons for tilting and the process of tilting and the correct procedures for using auto-tilts 6.5 State the benefits and drawbacks of vertical extractors 6.6 Explain the process of changing a cask 6.7 Describe the procedures for pouring draught cask ale
7. Describe product dispense systems for keg and explain how to maintain them	7.1 State the types of cooling equipment available 7.2 Explain why and how coolers should be maintained
8. Outline basic aspects of receiving and controlling cellar stock	8.1 State the reasons and procedures for checking deliveries 8.2 State the recommended product and shelf lives for cask and keg beers 8.3 Outline the principles of stock control to ensure beers are sold within recommended product life
9. Explain how to store and present bottled beers and lagers	9.1 Describe the procedures for pouring and presenting bottled beers 9.2 Outline the best temperatures for bottled beers

ABCQ Practical Learning Outcomes

By the end of the course, candidates should be able to demonstrate practical competence in:

- Serving a 'perfect pint'
- Cleaning lines
- Changing a cask or keg
- Tapping, tilting and venting.

ABCQ (keg) Learning Outcomes and Assessment Criteria

Subject	At the end of the session candidates will be able to:
1. Understanding beer products and the business benefits of dispensing beer correctly	1.5 Outline the characteristics of the main types of beer 1.6 State which products are brewery/cask conditioned and whether delivered in kegs or casks 1.7 State the business benefits of serving beer correctly 1.8 State the key requirements for a 'perfect pint'
2. Outline how to maintain personal and food hygiene in the bar area	2.4 Explain how the Food Safety Act 1980 applies to beer 2.5 Outline the basic procedures for cleaning spouts and taps on the bar 2.6 State the key personal hygiene standards that apply to the bar
3. Explain how to maintain, clean, and store glassware	3.6 State key hygiene standards for glass washing 3.7 Explain how and why glassware should be handled hygienically 3.8 Outline different glass washing methods 3.9 Describe how to use glass washing equipment correctly 3.10 Explain the reasons and methods of renovating glassware
4. Describe how to dispense the 'perfect pint' of draught lager, beer and stout	4.5 Describe generic principles for presenting a 'perfect pint' 4.6 State the in-glass service temperatures for the various beers 4.7 Describe the procedures for pouring a 'perfect pint' 4.8 Identify and outline how to rectify problems with dispense of keg beer products
5. Explain how to maintain a safe and effective cellar	5.10 Explain how cellar hygiene affects beer quality 5.11 Explain how current legislation impacts on cellar hygiene 5.12 State how to maintain cellar hygiene 5.13 State optimum cellar temperature and explain how temperature affects profitability and beer quality 5.14 State how and why a cellar should be ventilated 5.15 State how to store gas cylinders safely 5.16 State how to handle and connect gas cylinders safely 5.17 State the importance of cleaning lines 5.18 Explain the procedures for cleaning and maintaining lines
6. Describe product dispense systems for keg and explain how to maintain them	7.3 State the types of cooling equipment available 7.4 Explain why and how coolers should be maintained
7. Outline basic aspects of receiving and controlling cellar stock	8.4 State the reasons and procedures for checking deliveries 8.5 State the recommended product and shelf lives for keg beers 8.6 Outline the principles of stock control to ensure beers are sold within recommended product life
8. Explain how to store and present bottled beers and lagers	8.1 Describe the procedures for pouring and presenting bottled beers 8.2 Outline the best temperatures for bottled beers

ABCQ (keg) Practical Learning Outcomes

By the end of the course, candidates should be able to demonstrate practical competence in:

- Serving a 'perfect pint' of draught
- Serving a bottled beer product
- Cleaning lines
- Changing a cask or keg.

Appendix 7

ABCQ Specimen Questions

- 1 A fresh glass should be used for every serve because:
 - A It maintains the turnover of glassware
 - B It helps to maintain hygiene standards
 - C It keeps bar staff busy
 - D It stops beer from fobbing up

- 2 To keep the cabinet glass washer in top condition, it is recommended that the filters are cleaned:
 - A Everyday
 - B At the end of every cycle
 - C Once a week
 - D When glasses begin to come out dirty

- 3 It is good practice to renovate new glasses because renovation:
 - A Decreases breakage
 - B Polishes glasses
 - C Prevents smears appearing when they are in use
 - D Removes residues from the manufacturing process

- 4 What is the **maximum** percentage volume for the head of beer on a pint of beer?
 - A 1%
 - B 5%
 - C 10%
 - D 15%

- 5 What is the typical 'in glass' temperature for stout when passed through a remote cooler?
 - A 2 - 4°C
 - B 5 - 8°C
 - C 11 - 13°C
 - D 12 - 14°C

- 6 If a cellar is left to become dirty, the **most** likely result is that:
 - A Cask ales will become hazy and sour
 - B Cask ales will take longer to condition
 - C Keg beers will develop chill haze and have poor lacing
 - D Keg beers will be too cold at dispense

- 7 What is the ideal cellar temperature range for storing beer?
 - A 8 - 10°C
 - B 11 - 13°C
 - C 14 - 16°C
 - D 18 - 20°C

- 8 How should connected gas cylinders be positioned to ensure they are safe?
- A Leant against the wall
 - B Lying on their side
 - C Stacked and no more than 3 high
 - D Secured standing upright
- 9 How often should lines be cleaned?
- A At least once every 7 days
 - B Every 10 days in a temperature controlled cellar
 - C Every 14 days
 - D When the lines look dirty
- 10 Immediately after delivery, cask beer should be:
- A Connected up to the bar
 - B Tapped with a hard peg
 - C Put on to stillage
 - D Stored outside the cellar in a safe place
- 11 Once cask beer is connected up for sale, it is advisable to sell it within:
- A 24 hours
 - B 3 days
 - C 1 week
 - D 10 days
- 12 Which of these **best** describes how to pour bottled stouts?
- A Do not pour the beer, customers should drink directly from the bottle
 - B Hold the bottle so that the neck is about 10 mm above the tilted glass and pour down the side
 - C Keep the neck of the bottle in contact with a tilted glass and pour slowly
 - D Turn the bottle upside down and empty it quickly as possible into the glass

The following are the answers and relating assessment criteria for the specimen questions:

Question	Answer	Assessment criteria
1	B	3.1 State key hygiene standards for glass washing
2	A	3.4 Describe how to use glass washing equipment correctly
3	D	3.5 Explain the reasons and methods of renovating glassware
4	B	4.1 Describe generic principles for presenting a 'perfect pint'
5	B	4.2 State the in-glass service temperatures for the various beers
6	A	5.1 Explain how cellar hygiene affects beer quality and why beer should not be filtered back
7	B	5.4 State optimum cellar temperature and explain how temperature affects profitability and beer quality
8	D	5.7 State how to handle and connect gas cylinders safely
9	A	5.9 Explain the procedures for cleaning and maintaining lines
10	C	6.3 State reasons for and explain the process of stillaging
11	B	8.2 State the recommended product and shelf lives for cask and keg beers
12	B	9.1 Describe the procedures for pouring and presenting bottled beers

Glossary

Air lock:	Pocket of air drawn in through leaking connection that can give rise to fobbing dispense
Alcohol content:	Measure of the amount of alcohol in beer, usually expressed as a percentage by volume (ABV)
Ale:	Historically, an unhopped, fermented, malt drink; nowadays ale is any beer produced by fermentation at around 65-70°F (18-21°C)
Aroma:	Can be good, such as distinctive aroma from hops, or adverse, due to yeasty smell resulting from poorly cleaned beer lines
Autotilts:	Metal cradles which automatically tilt as cask ale is dispensed
Barrel:	36 gallon (164 litre) cask or keg beer container
Bacteria:	Micro-organisms that can grow in beer and spoil it by producing haze and off flavours
Beer engine:	Cask dispense cylinder containing manually activated piston to draw beer up from cask
Best Before Date:	Date by which the brewery recommends that the container be sold
Bitter:	Pale or amber ale, usually well hopped for a bitter flavour
Blanking nut:	Nut used to seal end of vertical extractor tube prior to connection
Bleed taps:	Found on fob detectors and electric motors. Small on/off valves that allow air locks to be bled from the dispense system. Must be cleaned properly during line cleaning cycle (See also vent taps)
Bright beer:	Beer which has been filtered to make it brilliant to the eye
Carbon dioxide (CO ₂):	A naturally occurring gas which is a by-product of fermentation. Also used to pressurise beer lines enabling products to be dispensed from cellar to bar
Carbonation:	The level of carbon dioxide bubbles in keg beer
Cask:	Container, nowadays made of metal, used for holding traditionally brewed beer, hence 'cask ale'
Cask conditioning:	Maturing process by which residual sugar in cask ale is converted to alcohol and carbon dioxide when stillaged in the cellar. (Also known as 'secondary fermentation')
Cellar:	Temperature controlled liquid food store
Cellar cooling:	Wall mounted cooler which cools the air in the cellar
Cellarbuoy:	Contains non-return valve which stops the line filling up with fob when the keg or cask runs out. (Also known as fob detector)
Chill haze:	Cloudiness in cask ale due to precipitation of proteins at low temperatures
Cleaning bottle:	10 or 50 litre white plastic drum used to retain water or detergent solution during the line cleaning process
Conditioning:	Process by which residual sugar in cask ale is converted to alcohol and carbon dioxide when stillaged in the cellar. (Also known as 'secondary fermentation')
COSHH:	Control of Substances Hazardous to Health. Legislation which governs the use of harmful chemicals in the workplace places responsibilities with employees and employers
Coupler:	'Keg' coupler attaches keg to the keg dispense system
Dry hopping:	Placing dry hops, flowers and cones into the cask just before it is sealed to enhance its aroma and palate. It is essential to use hop filters on the products

Equilibrium pressure:	Term to describe the fixed relationship between the CO ₂ content of a beer, the temperature at which it is stored and the gas pressure which needs to be applied in order for the beer's CO ₂ content to be maintained and to prevent fobbing
Extractors:	Also known as 'Syphons'. System for vertical stillaging of cask products
Electric pump:	Used where the distance between the dispense tap and the keg is too far to be driven by gas pressure alone. Normally on keg products
Fermentation:	The process by which yeast digests wort sugars and converts them into alcohol and carbon dioxide gas
Fob detector:	Contains non-return valve which stops the line filling up with fob when the keg runs out. (Also known as cellarbuoy)
Filtering back:	Process by which beer remaining in the beer lines after a session is filtered back into the cask. This practice is discouraged. The Health and Safety risk of contamination is high with severe implications. Normal policy is 'Never filter back to cask'
Filtration:	Keg, bottle and canned beer is filtered after conditioning to remove remaining yeast – so it becomes 'bright beer'
Finings:	A permitted material added to cask ale to aid settling and clarification
Firkin:	9 gallon (41 litre) cask ale container
Flash boiler:	Under-counter beer cooler usually stored on a shelf below the beer tap
Fob (Fobbing):	Too much foam in the beer
Font:	Device to advertise beer brand that can be attached to the tap or be part of the font. (Known as 'integral' font)
Fungi:	Mould that grows on cellar walls and beer dispense equipment. Capable of beer spoilage
Gas breakout:	Escape of gas due to high dispense speeds or high temperatures, usually results in fobbing
Gas haze bubbles:	Cloudiness in beer caused by suspension of fine gas
Gas pump:	Used where the distance between the dispense tap and the keg or cask is too far to be driven by gas pressure alone.
Gas pick-up:	Absorption of carbon dioxide gas by keg beer. Results in over-carbonation and fobbing
Gyle number:	Unique identifying number found on the rack label which enables the origin of the beer to be determined
Green beer:	Cask beer before it is conditioned
Hard peg:	Non-porous pegs that keep carbon dioxide trapped in the cask once conditioning is completed (See spile)
Haze:	Cloudy beer, usually due to dirty lines or beer being on sale too long (cask beer more than 3 days, keg beer more than 5 days)
Heat dump:	Heat exchanger that allows heat generated from a remote cooler to be extracted from the cellar
Hogshead:	54 gallon (246 litre) cask ale container
Hop:	Climbing perennial plant. The cones from the female are used for giving beer a bitter flavour

Hop filter:	Small in-line gauze filter placed at the outlet of the cask which prevents some cask bottoms passing through to the beer engine
Integral remote:	Remote cooler placed outside cellar. Heat from the refrigeration cycle is released into the immediate environment (See remote cooler)
Keg:	Container for holding chilled and filtered beer
Keg beer:	Beer that is conditioned in the brewery. It is then chilled to ensure that solids such as yeast fall to the bottom. It is then filtered to remove any remaining particles
Keg coupler:	Attaches keg to the keg dispense system
Keystone:	Bung for hole found at the front flat end of a cask. This keystone is pushed into the cask by the 'Cask Tap' during tapping and venting
Kilderkin:	18 gallon (82 litre) cask ale container
Lager:	A straw-coloured fermented malt drink made from lightly kilned malts and fermented at 4F-55°F (7°-13°C)
Line cleaner:	Special detergent formulated to disinfect beer lines, must be used in proper quantities and within best before date for optimum cleaning
Line cleaning cycle:	Frequency, measured in days, between line cleaning. Should be no more than 7 days
Loom/python loom:	Keeps beer in the beer lines cool between the remote cooler and the bar
Manual dispense:	Cask dispense cylinder containing manually activated piston to draw beer up from cask. (See beer engine)
Mixed gas:	Carbon dioxide and nitrogen mixed in different ratios to provide particular taste and visual characteristics
Nitrogen:	Naturally occurring gas used in addition to carbon dioxide. Produces creamflow head characteristics and smoother palate
Nucleation:	Process by which head-forming bubbles are generated. It can result in unsightly gas bubbles sticking to the inside of a glass of beer in greasy glasses
Nucleated glasses:	Glasses that contain an etched design enabling carbon dioxide to form bubbles and give the beer 'condition'
Non-pressurised line cleaning:	Line cleaning solution is facilitated using gas or electric motors instead of gas pressure
Orifice plate:	Small circular plate with holes in it inserted into tap body. Used to ensure correct flow characteristics
Over carbonation:	Too many gas bubbles in keg beer, caused by gas pick-up. Typically found when gas is not turned off overnight or kegs it takes longer than 5 days to sell a keg
PSI:	Pounds per square inch. Imperial Measure of pressure in dispense system. Kegs typically contain approximately 10 to 40 psi
Palate:	Describes taste of beer, which can be adversely affected by dirty lines or beer being on sale too long. (cask beer more than 3 days, keg beer more than 5 days)
Pasteurisation:	Flash heating of keg, canned and bottled beer to reduce the risk of microbial contamination
Pin:	4.5 gallon cask container

Pressurised line cleaning:	Line cleaning is facilitated by using carbon dioxide, nitrogen or mixed gas pressure
Pump control:	Small control box which activates electric pump on demand
Python:	Insulated beer lines that run from the remote cooler in the cellar up to the bar and are chilled by circulating refrigerated water
Python cooler:	Cools beer in beer lines to correct dispense temperature by immersion in a cold water bath. Usually in or adjacent to the beer cellar (See integral remote, split remote and remote cooler)
Racking:	Filling casks or kegs with beer
Rack date:	Date when container is filled at the brewery
Rack label:	Label on the container indicating brand, best before date and rack number
Rack number:	Unique identifying number found on the rack label which enables the origin of the beer to be determined
Reducing valves:	Valves used to reduce the dispense gas pressure in stages from the gas cylinder to the keg. Pre-set by Technical Services
Refrigeration cabinets:	For cool storage of canned and bottled beers in the bar area
Remote cooler:	Cools beer in beer lines to correct dispense temperature by immersion in a cold water bath. Usually placed in or adjacent to beer cellar (See integral remote, split remote and python cooler)
Rinse aid:	Used in glass washing to help rinse detergent from glasses. Must be used in the right quantities otherwise beer will dispense flat
RSP:	Recommended Sale Price
Scotches:	Wooden triangles that wedge support and stabilise a cask in the cellar
Secondary fermentation:	Process by which residual sugar in cask ale is converted to alcohol and carbon dioxide when stillaged in the cellar. (Also known as cask conditioning)
Short measures:	Short measures and slow dispense can be caused by fobbing beer. Current legislation states that customers must receive at least 95% liquid in a pint glass, equivalent to a head depth of 10mm
Shelf life:	The number of days available to dispense the product, measured from the rack date to the best before date
Shive:	Wooden bung at the top of the cask with a central core. A wooden peg ('spile') is driven through the centre and allows carbon dioxide to escape
Soft peg:	Manufactured from porous cane, allows carbon dioxide to escape during cask conditioning (See spile)
Spear:	An extraction valve and tube fitted to keg containers to allow the passage of gas in and beer out
Spile:	The wooden peg inserted through a cask's shive. The soft, porous type allows the cask to be vented of carbon dioxide gas. The hard, non-porous type seals the kegs and keeps the beer fresh. The universal spile is semi-porous and serves as both a soft and hard spile

Split remote:	Remote cooler placed inside cellar. Heat from the refrigeration cycle is released into the environment through a heat dump outside the cellar
Stillage:	A firm support for casks that helps to keep them still, allowing sediment to settle evenly across the base of the cask. (Hence the term stillaging)
Stillaging:	The process by which casks are positioned securely on brick, wooden or metal structures in the cellar after delivery
Stoopers:	Metal brackets attached to wooden blocks, used for stillaging
Stock control:	A stock rotation system that enables the oldest product to be dispensed first
Syphons:	Also known as 'extractors'. System for vertical stillaging of cask products
Tapping:	During cask 'tapping and venting', the action of inserting a cask tap into the keystone so the cask can later be connected for dispense
Tilting:	The action of tilting casks at two thirds full to allow more beer to be used
Top pressure:	Refers to the set amount of applied gas pressure onto the surface of beer within a keg
Universal peg:	Semi-porous pegs made out of sycamore or lime wood. Can act as soft or hard peg depending on how firmly inserted (See spile)
Vent taps:	Found on fob detectors and electric motors. Small on/off valves that allow air-locks to be bled from the dispense system. Must be cleaned properly during line cleaning cycle (See also bleed taps)
Venting:	In casks, the controlled release of carbon dioxide gas that has built up in the last stage of fermentation using soft, hard or universal pegs
Vitapad:	Trade name for cushion that prevents container damage during handling
Vinegar fly:	Insect infestation found in warm or dirty cellars
Weil's disease:	Dangerous, flu-like disease transmitted by rat's urine
Wild yeast:	Yeast occurring naturally in the air. Different from brewing yeast - a special strain used for beer. Infection with wild yeast can damage beer so prevent your stock coming into contact with it by keeping your cellar clean and aired
Yeast:	A generic description of single cell micro-organisms (fungi) that convert sugar derived from malted barley into alcohol and carbon dioxide, a process known as fermentation. (See brewery yeast and wild yeast)