

all, they are particularly prone to the accumulation of bacteria and micro organisms on the inner surface, thus requiring weekly cleaning, which in turn leads to a shorter service life. Valpar's polyethylene (MDP) pipes are manufactured using single layer virgin materials and prove better suited to beer dispensing applications than EVA or PVC, despite the fact that they require weekly sanitation due to their limited resistance to bacteria and yeast accumulation.

Valpar's more recent Brewmaster product range was created as a result of collaborating with a number of leading international breweries with the aim of obtaining the ideal tube for beer dispense. Brewmaster tubing consists of three layers, the innermost one manufactured in ultra-smooth nylon, similar to glass, which guarantees a fresher tasting product. Thus it is also possible to extend the cleaning cycle, as the smooth inner lining reduces bacterial and yeast growth on the tube surface. Brewmaster pipes are also characterised by lower gas-permeability, another attribute in maintaining beer quality. The contact layer of Valpar beverage tubings complies with EU food contact legislation.

The outside of the wrapped tubing cluster is covered by flexible closed-cell foam insulation. The low thermal conductivity of the insulation is used to reduce heat absorption from the surrounding



*The pythons used at the Brewing Industry International Awards at Drinktec last year to cool beer to over 100 taps.*

ambient temperature. Heat gain entering a python can be controlled by the insulation thickness. The two main issues to be considered when selecting insulation thickness are heat gain and condensation control. Standard choices of insulation thickness for pythons are 13mm or 19mm. For some special applications, such as very high ambient temperatures and humidity conditions, 25mm and 32mm insulation can also be used. More insulation gives lower dispense temperatures, i.e. colder beer; it also means a lower load on the cooler, resulting in less breakdowns.

Sufficient insulation is also applied to prevent condensation on the python's surface. For example in an ambient temperature of 25°C, a typical python with 13mm insulation and line temperature of 2°C will give

condensation protection up to 70% relative humidity whereas for 80% humidity 19mm insulation is required. It is therefore essential to assess the average temperature and humidity of the area where the python is to be installed.

There are a number of different wrappings used throughout the industry to protect the insulated product. PVC tape outer protection has been the industry norm for many years, but Valpar have recently introduced EasyFit pythons which are manufactured with a low friction reinforced tough outer jacket that does not crush the insulation, making the python more energy efficient and much less likely to be damaged during installation. Every customer who has used this revolutionary product has been impressed by the difference. ■



● If you require any further information on any of our products, please visit the company's website on [www.valpar.co.uk](http://www.valpar.co.uk) or telephone Valpar on +44 (0) 28 9145 4544.

## Automated beer line cleaning

**There are significant benefits to be gained from installing efficient automated beer line cleaning equipment – why then is the take up of these systems so slow?**

By **Paul Buttrick**  
Beer Dimensions

Do you remember the rotating rubber cacti in the old days of glass cleaning? Do you remember when you went to a pub and hung on to your own glass for the evening? I can't really remember why, but it might have been something to do with the soupy liquid and alien cactus shaped rubber object stuck to the bottom of the sink that was used to 'clean' glasses. It got even more interesting later when the said rubber cacti actually

rotated to relieve the bar person of the need to plunge the glass over it.

Nowadays, most bars have glass cleaning machines which, provided the correct cleaning fluid is used, produce a crystal clean glass every time. Using a cloth to dry glasses is discouraged due to possible unhygienic nature of the cloths and head negative effects from the tea towel detergent. Using detergent and rinse-aids keep glasses in good condition and a renovating agent can be used to bring older stained glasses back up to standard.

So, that's where we were with glass washing not so many years ago. It seems that beer line cleaning remains in the 'rubber cactus' era. Cleaning beer lines is often a manual task involving making up chemical solutions in plastic bottles and soaking lines for a pre-determined, but often arbitrary period. (Fig.1 & 2)

Account owners and managers can have different approaches to ensure beer quality and hence maximising their profitability.

*“There is often a suspicion of new technology, especially anything that is ‘computer controlled’. Some users have had poor experiences in the past and are reluctant to repeat them.”*

- ‘We must get as much revenue from our stock as possible, wastage must be minimised, it is the ‘brewery’ who are responsible for ensuring the beer served to our customers is always of a high standard’
- OR
- ‘The beer we get from the brewery is always high quality and we must make sure that it is always served in first class condition – this means that we must make sure the cellar and beer lines are kept clean. If we serve excellent quality beer, we will sell more and increase the reputation and success of our business’.

It may not be official policy, but different companies and individuals tend to follow one of these strategies. It would seem sensible to use modern technology to get the best solution. Automatic cleaning and sterilising of equipment in breweries and food factories has been the norm for many years now, but automatic beer line cleaning (Fig 3) in the trade has been slow to develop. With expectations of beer quality and food hygiene rising, account managers and owners could do well to consider how they can get the best results.

#### **In an ideal world, what does a properly set up, well designed automated system give?**

*Improved beer quality leads to increased sales – consistently well cleaned lines will improve beer quality.*

*Automation frees up staff – staff released from the tie of manual systems can carry out other important work.*

*Reduced beer losses – automation enables beer losses from traditional “manual” cleaning systems to be controlled and reduced.*

*Improved health & safety for staff –*

well designed systems reduce accident risk to staff from chemical spillage and splashes. (Fig 4 & 5) *Improved protection for customers – well designed systems reduce the risk of contaminated beer.*

#### **Why is automated beer line cleaning not being more widely adopted?**

Automatic equipment has been developed by a number of companies, but why with all the benefits claimed, have only about 4% of accounts adopted this technology and what can manufacturers do to increase their sales?

#### **Reports of ‘unreliable technology’**

There is often a suspicion of new technology, especially anything that is ‘computer controlled’. Some users have had poor experiences in the past and are reluctant to repeat them. Manufacturers must therefore make their equipment foolproof and give clear easily understood instructions especially of what to do if a problem occurs. Easily understandable feedback (Fig 6) and records of cleans are also useful. Many problems are made worse by a lack of understanding, with button pushing and fiddling making things worse – I’m sure many brewers remember the early days of CIP and the ‘jabbing finger’ and ‘tweak it with a screwdriver’ syndrome.

#### **Confusion and debate on how automated systems work – ‘Interference’ v ‘chemical’ cleaning methods**

It is claimed that using ‘interference’ methods, for example, electromagnetic devices, enable the time between cleans to be reduced significantly by reducing the build

up of yeast and other material on the inside of beer pipes. Chemical methods largely mimic manual chemical cleaning, although different companies apply different techniques to the way they control the clean (Fig. 7), and a number are using ‘sensors’/analysers to do this. Both techniques have their merits, although I would say that true cleaning and sterilisation can only be achieved using specifically formulated line cleaning solutions. Perhaps the ‘Rolls Royce’ of line cleaning equipment would include both, but it would no doubt be at the top end of the price range.

#### **Unsuccessful trials**

It is easier to agree to carry out a trial on a piece of equipment than to reach an appropriate result and conclusion. Where many go wrong is that protocols are not agreed before a trial starts, and there is insufficient or poor review of the trial results afterwards. If there is no agreed end to a trial and review of results against a set success criteria, then customers are far less likely to invest.

#### **Poor return on investment**

Whether the installation is based on a capital or leasing basis it is important to be realistic in terms of a return on investment, because benefits may not be immediately obvious to the account holder, especially to start with. There is an expectation that beer savings will very quickly cover the costs, this is not as easily accounted for as first thought, and are only part of the benefits obtained.

#### **Staff time saving not realised**

Beer line cleaning is carried out by working staff, not managers and investors, therefore, the value of time saved and the benefit of a consistent automatically operated system are not always apparent.

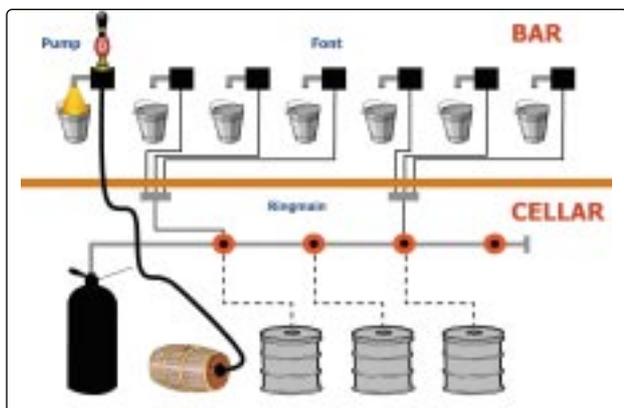
#### **Impact of consistent beer quality not realised**

The reputation of an establishment is substantially attributed to the quality of what it sells. Precisely controlled and regular cleaning of beer lines contributes to delivering consistent high quality beer to customers – it is difficult to attribute increased or failing sales to good or poor quality. It is therefore difficult to measure this accurately for investment purposes, and is often excluded.

Figure 1 below: Diagram showing a typical manual line cleaning system incorporating a cleaning bottle in the left of the cellar area and use of buckets for collecting solutions in the bar

– Diagram supplied by The Beer Piper Company.

Figure 2 below right: A typical plastic bottle used for manual line cleaning of beer lines. Cleaning solution is ‘made up’ in the bottle and pushed into the beer line using gas pressure or a pump.



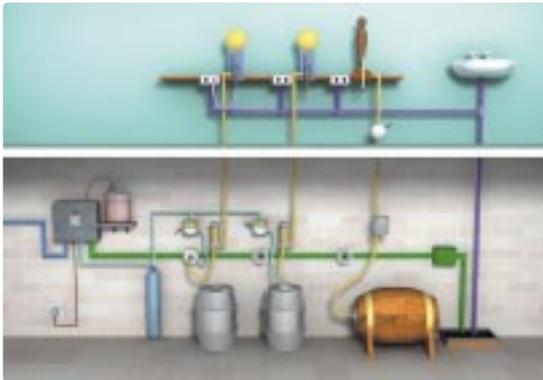


Figure 3 far left: Diagram of a typical automated line cleaning system, note the control panel and detergent dosing system on the left hand side in the cellar area, and drains link up in the bar area on the left hand dispense head.  
– Diagram supplied by BLCS Ltd.

Figures 4 and 5 left: Safe piping of cleaning solutions to drain on an 'automated' system compared with using buckets on a 'manual' system.  
– Photo supplied by The Beer Clear Company.

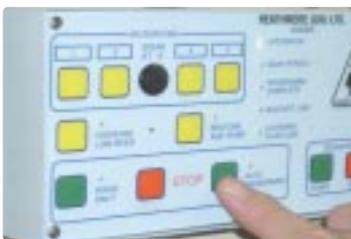


Figure 6: Control panel of an automated system in the bar area, with lights showing the progress of a clean and fault conditions  
– Photo supplied by The Beer Piper Company.



Figure 7: Cellar control panel of an automated cleaning system using a digital display.  
– Photo supplied by BLCS Ltd

### To sum up

So there it is, in a simplistic sort of way. The trade don't trust automated systems, because of a lack of understanding and that systems are too complicated and hard financial assessments which do not seem to add up to a worthwhile investment. The manufacturers and suppliers do not always get the whole message across and this is where more ingenuity and effort must be made. For pub, hotel chains and other group businesses, a policy of installing efficient and cost-effective equipment must be of huge benefit in terms of offering a consistently high quality drink – it is so much easier than *ad hoc* cleaning procedures using plastic bottles and hand made up cleaning solutions, often by temporary staff.

Another impediment to change is that the trade and brewing companies are, in most cases, no longer integrated, and it was the more technically leaning breweries that were more likely to embrace and adapt technology similar to that already in use. With breweries now mostly

independent and focusing on reducing supply chain costs or marketing and the trade concentrating on yields and other costs, the application of technology to improve dispense costs and quality offering is not a priority. Not many years from now if equipment manufacturers get their act together, and the trade take a longer term view on investment in technology, then, automated line cleaning equipment could be as common as glass cleaning machines are now. ■

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