Advanced Technology for "In-Line" Kegging Machinery

By Andrew J. Brewer and A. Carter

ABSTRACT

The various advances in technology available with modern "in-line" keg washing, sterilizing and filling machines will be described. Developments in the following areas will be specifically detailed:

(a) Internal washing of kegs
   - Pulsed washes; Spear washes; Reverse basket washing;
   - Chemicals used for washing

(b) Keg Filling
   - Modulating back pressure filling

(c) General developments
   - Method of transfer detail

Advances in recent years of modern "in-line" machines will be summarized and the advantages of "in-line" compared to "Carousel" systems will be outlined.

Keywords: In-Line Kegging, Single Valve Kegs

INTRODUCTION

Processing of single valve containers utilizing "in-line" lane machines has been the predominant kegging technology for many decades. A number of new developments have been made to "in-line" machines to challenge perceived benefits of "carousel" systems while retaining the flexibility the "in-line" machine is able to offer.

NEW MACHINES

Burnett & Rolfe has developed new lane based machines, operating on a tandem processing principle. Each lane contains six processing heads, and kegs are processed through the machine in pairs. (See figure 1).
IMPROVING WASHING TECHNOLOGY

As kegs are processed in pairs, more time is available to ensure adequate washing and sterilization of the container.

Modern machines now feature:

- Pulsed washes
- Spear washes
- Reverse basket washing
- Acid and/or caustic detergent washing sequences

FIGURE 1

IMPROVED FILLING TECHNOLOGY

Control of filling is undertaken by accurate control of back-pressure gas in the container. Filling profiles for each product are established within the control system and are recipe driven. Control of fill is dynamic via keg pressure - no mechanical valve to regulate flow is required. This system ensures product quality during filling, and is able to provide extremely accurate volume of product into keg.

FIGURE 2
Detergent Washing

FIGURE 3
Method - Modulating Back Pressure - Flow Meter
Completely Fill - Conductivity Check

FIGURE 4
Profile for 100L Kegs
SUMMARY OF ADVANCED TECHNOLOGY

Triplex processing
(kegs processed in pairs)

Longer detergent / acid soaking sequences
(improved cleaning regimes)

Pulsed washing sequences
(improved washing performance)

Control of fill by modulating back pressure gas
(no mechanical valve)

Live storage infeed system
(eliminates keg starvation)

Reduced spear valve movements
(3 on Triplex plant)

ADVANCED MIS
& SCADA SYSTEMS

High energy efficiency
(air purges, wash heat recovery)

High output
(1200 kegs per hour from 10 lanes)

ADVANTAGES OF “IN-LINE” MACHINES

- Small batch run capability
- Frequent size change capability
- Rack two sizes/qualities simultaneously
- Ability to maintain individual lanes
- Breakdowns result in lost lanes - not plant
- Better keg size range capability (5-160L)
- Ability to expand as production grows
- Low utilities consumption

FIGURE 5