

# Beverage Plant – Process Segment

## Fillers

### Application History

The filler is the lead machine or most important piece of equipment in the beverage plant manufacturing process. The design features a rotary table that takes the package (bottles or cans) from the rinsing operation and, fills the proper amount of product and transfers the package to a capper or seamer. Cylinders lift the package and present it to the filling nozzles. If production is interrupted due to a bearing failure the highest amount of downtime cost is realized, all downstream operations cease and production may not be recovered at normal straight time rates. Some short life products may be lost if not used in a timely manner.

Food grade lubricants are required in this application since incidental contact with the product may occur. Most facilities use excessive amounts of lubricant to insure acceptable results. Lubrication intervals may be once per shift to once per day (24 hours).

The main filler bearing is the most important component of the filler. A typical main bearing replacement would exceed \$40,000 plus lost production time. Numerous smaller bearings and gears also require grease lubrication.

The filling environment is one of the most severe of all manufacturing operations. The product will contribute to bearing failure and sanitation is frequently performed. Normal procedure is frequent high-pressure water washdown. Some periodic sanitation with acids or caustics is also performed to eliminate bacteria. All these conditions contribute to short bearing life.

In many cases the filler OEM provides an automatic grease system to extend bearing life and insure trouble free operation. Many other fillers are manually lubricated and are candidates for Centro-Matic systems. Previously fillers required shutdown to safely perform the lubrication task.

Certain liquid fillers require external oil lubrication to insure operation of the lift cylinders and pull down cams. The past practice employed a system consisting of a Centro-Matic ram pump or a small barrel pump operated by a timer and periodically sprayed the oil on the moving cylinders with an airless spray nozzle. An improved system featuring Orsco components is discussed in a separate section.

### Potential Cost Savings

Labor to lubricate	Excess lubricant cost
Replacement bearings / gears	Labor to repair
Downtime to lubricate	unscheduled downtime (failures)
Housekeeping (cleanup)	Product loss

### OEM Manufacturers                      **SIC 3565**

Crown fillers were produced by Crown Cork & Seal Equipment Division that eventually went bankrupt. Adcor, located in Baltimore Maryland acquired Crown's assets and are now furnishing parts and offering new fillers utilizing the classic Crown design. Listed below are other popular fillers that may

be found in beverage plants. Some may be candidates for the lift cylinder spray system; all are targets for grease systems applications if they are currently lubricated by the manual method. It has been noted that some existing Centro-Matic systems are in poor condition and require attention to insure proper operation. This is an additional opportunity for upgraded pump stations (larger reservoirs) and new injectors. Also some distributors have been successful in securing periodic inspection and maintenance contracts that relieves the PM task from the customer's responsibility.

Crown (Cemco)  
Klockner KHS (H&K)  
SIG Simonozzi  
BevCorp Industries  
Elmar Industries  
Pneumatic Scale  
Fowler Products

Meyers  
Krones  
US Bottlers  
Adcor  
Linker Equipment  
Solbern  
Per-Fill Industries

## **User Customers**

Possible applications for the lift cylinder spray system and automatic grease systems exist in food manufacturing facilities that produce beverages in bottles or cans. These are classified as:

SIC 2023 Milk condensed  
SIC 2035 Sauces  
SIC 2082 Malt beverages  
SIC 2085 Liquors  
SIC 2087 Syrups

SIC 2026 Milk  
SIC 2037 Juices  
SIC 2084 Wine  
SIC 2086 Soft Drinks  
SIC 2095 Coffee

Significant customers in this area include; Anheuser-Busch, Miller Brewing, Coors Brewing, Coca Cola, Pepsi, Shasta and bottled water producers. Bottled water continues as the largest projected growth product in 2004. Pepsi alone is anticipating a 35% growth for their Aquafina product.