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Smoother torque puts a new twist on bottle capping



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An Altra Industrial Motion Company

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Eliminating overtightened caps means less maintenance and fewer frustrated customers



One bottling line at a Pepsi plant in Detroit uses 20 Warner Electric headsets to put caps on, letting the line crank out 1,000 bottles/min. A smaller line with 16 headsets handles 700 bottles/min.

One of the last steps in any bottling process is putting on the cap, a task usually done by electromechanical devices called headsets. One problem with traditional headsets, however, is that they apply the torque that attaches the cap in one mighty surge. This often results in overtightened caps. And bottling companies trying to cut back on material costs by using smaller caps give customers little to hold on to when untwisting a cap. So if one of these smaller caps is overtightened, a large segment of the population will have difficulty getting the bottle open. The torque surge is also hard on equipment, with headsets needing to be rebuilt or replaced every three to four months. Other components suffer as well. For example, retention knives—the mechanisms that hold bottles in place while being capped—wear out quickly.

To solve this problem, Warner Electric, a company based in South Beloit, IL, under Altra Industrial Motion (www.warnerelectric.com) adapted the technology used in its magnetic clutches and brakes. It applies torque smoothly and consistently. This eliminates overtightening and reduces the variation in the amount of torque needed to unscrew the cap.

The headsets have been in use at a Pepsi Cola Bottling Plant in Detroit for over a year. In that time, they haven't had to rebuild a headset or replace a retention knife. And removal torque has stayed within 1 lb. of the target value.

The steel headsets come with a quad seal and drain holes. At the Pepsi plant, this translates into corrosion-free headsets. "Our previous heads would rust after only 10 weeks," says Dwayne Johnson, a Pepsi production technician. The steel also lets the headsets resist ozone, a gas used in bottling water.

The devices have a visual scale on the side for setting torque, making changeovers easier and faster. They need no torque measurements, recalibration, or trial-and-error operator judgment. The headsets also have a top-load scale to set the amount of downward torque they apply, a value usually between 35 and 50 lb-ft. A patented head-rise scale lets technicians visually confirm the height of the headset is correct.



An Altra Industrial Motion Company

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