

Sustaining success at Coca-Cola



As one of the most recognisable brands in the world, there is no one that either hasn't tasted a Coke, or one of its 130 associated beverage brands, or doesn't recognise the Coca-Cola logo or its iconic contour bottle. Many of its ad slogans have even entered the everyday vernacular, reinforcing its marketing impact, including 'It's the Real Thing' (1969), 'Have a Coke and a Smile' (1979) and 'Open Happiness' (2009).

Constantly looking to introduce innovative processes and products while maintaining the traditions and product quality that are demanded of such a well known company can be a daunting task. To that end, The Coca-Cola Company, which has its global headquarters in Atlanta, Georgia, US,

Optimising product quality and operational sustainability are driving forces at the Coca-Cola HBC plant in Hungary. Sueli Roel Backes reports on the use of Mouvex SLS Series Eccentric Disc Pumps in this equation

works hard to ensure that its bottling partners around the globe march to the beat of the same drum. This means that all of them are charged with meeting the expectations of consumers while simultaneously producing their products at the highest levels of corporate responsibility and environmental sustainability.

In parts of Europe and Africa, this task falls to the Coca-Cola Hellenic Bottling Company (HBC), Zug, Switzerland, which was formed in 2000 when the Hellenic Bottling Company SA acquired Coca-Cola Beverages. Today, Coca-Cola HBC operates in 28 countries, ranging from Ireland in the west and the Pacific Coast of Russia in the

east, to the Arctic Circle in the north and Nigeria in the south. In 2015, Coca-Cola HBC produced more than two billion unit cases, or the equivalent of approximately 50 billion servings, of carbonated soft drinks and still drinks like water, juices, teas and energy drinks, with reported net sales revenue in the region of €6.3 billion (\$7.04 billion). Just as important as ensuring product quality, Coca-Cola HBC prides itself on the fact that its 59 production plants, 289 filling lines and 292 warehouse and distribution centres operate in the most environmentally sensitive and cost efficient way possible. This commitment was acknowledged in 2014 and 2015 when the company topped the Dow Jones Sustainability Indexes (DJSI) both globally and in Europe. The DJSI honours those companies that have shown an ability to continuously improve their sustainability performance.

Sustaining excellence

Sustainability is integrated across every aspect of Coca-Cola HBC's business as the company looks to be a leader in the industry in terms of customer service and cost efficiency. In Hungary, where the Coca-Cola ad slogan is 'Kóstold meg az érzést' ('Taste the Feeling'), Coca-Cola HBC operates nine facilities, two of which are manufacturing plants while the rest are warehouses. The largest Coca-Cola bottling plant in Hungary is in the city of Dunaharaszti, located

These components are then transformed into the most popular drinks like Coke, Sprite, Cappy Juices, Nestea Iced Tea, Kinley, Lift and Powerade sports drinks.

A key link in the production chain is the unloading of the tanker trucks that deliver the base components to the syrup room. Focusing on production efficiency, Coca-Cola HBC decided to employ a just in time approach for its supply of concentrates. As such, it is imperative that unloading times are optimised and that no delays are experienced, lest the strict production schedule

the concentrates we were transferring, the pumps would sometimes freeze," comments Marincsák. "It's important that the pumps work every time because the trucks are always coming in and all of our production is scheduled just in time. We cannot have any stoppages and, if there are, I have to schedule maintenance, therefore I need to know every time that the system will operate as I require. The twin screw pumps were not able to empty out the total system, so from every tanker we had a lot of wasted product."



The Mouvex SLS Series Eccentric Disc Pump features a seal-less design

“There used to be more than 300 kilograms left in the truck and pipe system with the old pump. With the Mouvex, less than 100 kilograms remain in the pump and the piping system. So, if we reduce waste by 200 kilograms per load and recover more than one ton, that saves thousands of euros”

Pump revamp

With frustration mounting, Marincsák began a search for a solution and turned to Probc Kft, a Miskolc, Hungary based distributor of pumps and industrial equipment for use in industrial liquid transfer applications. During a visit to the Coca-Cola HBC Dunaharaszti facility to assess the situation, it became immediately clear to Richard Lackner and David Pétervári, co owners of Probc, that the existing pump technology was at the root of the facility's bottleneck.

“We realised that the main challenge was with the pump, but there was also an improvement to be done in the piping at the connection to the system,” recalls Pétervári. “By changing the pump and adapting the piping, we knew they could solve the problems that the twin screw pump was causing, including low unloading speeds from trucks, cavitation that caused noise, large energy consumption and very high maintenance costs.”

Probc's solution was to introduce the SLS Series Eccentric Disc Pump from Mouvex, a product brand of PSG. SLS Series pumps have been designed for use in the food,

about 15 kilometres (10 miles) south of the Hungarian capital of Budapest. The man responsible for meeting Coca-Cola HBC's meticulous standards regarding production and sustainability is Zoltán Marincsák, who is the maintenance manager for the Dunaharaszti facility.

“Sustainability at Coca-Cola is very important,” Marincsák explains. “Coca-Cola is the most famous brand in the world, so people expect a certain quality, and we also try to reduce day by day our carbon footprint or effect on the environment.”

The beverage production process in Dunaharaszti involves the facility receiving constant shipments of different consignments of raw materials and components such as sugar, concentrates, bases and syrups.

be compromised. Knowing that the fabrication of beverages has to adhere to rigorous regulations and guidelines, these concentrates, bases and syrups must be handled in the most sanitary manner possible in order to avoid the risk of bacteriological contamination.

This puts tremendous pressure on the pumps that are used to unload the tankers and transfer the beverage components to their specific storage and holding tanks. The unloading of these trucks was a job that the existing twin screw pumps were finding increasingly difficult to perform safely and satisfactorily at the Dunaharaszti plant.

“It would also take about four to six hours to empty one tank, and due to the low temperature and highly viscous nature of



Sustainability is integrated across every aspect of Coca-Cola HBC's business

displace the liquid from the suction side to the pressure side with a consistent and accurate flow. Given that the pump can run dry, the rotation of the parts creates a compressor effect that facilitates the stripping of discharge lines.

No margin for error

With a reputation as revered as Coca-Cola's, the company cannot afford to experience any degradation in product quality or sustainability aspects. When the operations at the HBC plant in Hungary were beginning to be compromised by the ill performing twin screw pump technology, Marincsák found the answer in the SLS Series Eccentric Disc Pump from Mouvex.

"The reliability of the equipment is very important because we provide high quality products and to create them we need high quality equipment," he concludes. "With the Mouvex pump we eliminate waste, we reduce water and energy consumption, and our maintenance costs are reduced. We also get very good technical support from Probc and PSG, which is very important to me." ■

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beverage, cosmetic and pharmaceutical industries, all of which require extremely hygienic operations. What sets the pumps apart is a seal-less design that incorporates a hermetic pump head with a self adjustable eccentric shaft protected by double wall, stainless steel bellows that ensure long life and product safety. Eliminating mechanical seals, packing and magnetic drives, the way Mouvex pumps are constructed reduces the risk of product contamination and costly leakages while avoiding messy spills, waste and product spoilage. This design has helped the SLS pumps earn certification from EC 1935/2004, EHEDG, 3A and FDA for use in food processing applications.

Reaping the benefits

Along with these advancements, the eccentric disc technology offers a range of benefits, including strong vacuum and compression effect for enhanced line stripping and optimised product recovery, low shear rate, self priming and dry run capabilities, exceptional volumetric consistency, no slip and almost completely pulsation-free operation. Due to the fact that the pump has only two wear parts, maintenance is easy and can be performed while the pump is inline.

"The Mouvex eccentric disc technology has a lot of benefits for Coca-Cola HBC," notes Pétervári. "In this case, the elimination of cavitation and vibration, the improvement of unloading times to around two hours, a reduced energy consumption and clean in place and water savings – no flushing water is necessary since the pump is seal-less.

"But the best benefit for Coca-Cola HBC is that the SLS pump guarantees a higher rate of product recovery because the Mouvex pump can suck much more concentrate from the container and push more of it through the pipeline to the tank."

Pétervári provided an SLS test pump to Coca-Cola HBC and for Marincsák, seeing was believing. "After the trial period, they were going to return the trial pump and we said, 'no, we would like to keep the Mouvex'," he says.

Since his own SLS Series pump had been installed, Marincsák has also had no reason to question his decision to deploy a different pump technology: "Food safety is critical because it's a hygienic industry and it's very important that there are no seals where foreign material can enter the system, so the hygienic design of the Mouvex pump is very important.

"Although there was a strong argument to justify integrating the Mouvex pump into the system, the key selling point was the recovery of pure concentrate and the contribution to the facility's sustainability goals. There used to be more than 300 kilograms (660 pounds) left in the truck and pipe system with the old pump. With the Mouvex, less than 100 kilograms (220 pounds) remain in the pump and the piping system. So, if we reduce waste by 200 kilograms per load and recover more than one ton, that saves thousands of euros."

A key to the Mouvex pump's enhanced product recovery capability is its unique conveying principle. This principle is based on two stainless steel components – the static cylinder and the moving piston – driven by an eccentric shaft, which generates a circular movement. Through this movement, the inner and outer chambers are formed, which

