

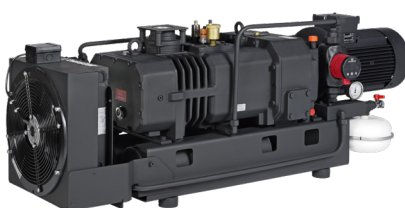
Global Brewer Gains Performance with **Substantial Energy Savings**

One of the largest global brewers worldwide, has set its sights on modernizing their multiple breweries and bottling plants in Brazil, which as a country has become the company's largest market in the world.

The main focus of these modernization efforts is to upgrade the plants to new innovative technologies that can allow the company to greatly reduce water consumption which is the main contributor to high energy costs and, most importantly, an increasing environmental impact. To this end, the company has recently developed two programs to help steer it in the right direction. Firstly, the Drop the C program aims to reduce CO2 emissions by 80% and use as much as 70% renewable energy by 2030, and secondly, the Every Drop program supports watershed health in areas where the company operates.

Currently, one of the company's Brazilian bottling plants relies heavily on water because it uses liquid ring pumps for their bottle filler process. Liquid ring pumps use water with a seal to create vacuum, which is then used to extract air from the bottle before it is filled. When the pumps are not performing consistently, there is an increase in the use of CO2 to adjust the TPO (Total Package Oxygen). This presents a few problems for the company:

- 1.** An increase in energy costs linked to a high water consumption. In addition to consuming over 1057gal of water per hour, their current liquid ring pumps used 37Kw of electricity per hour.
- 2.** Lack of cooling circuit which creates inconsistent pump performance because of a high variation in water temperature; a common occurrence in tropical regions with high ambient temperature variations.
- 3.** High CO2 usage to compensate for the vacuum deficit brought on by inconsistent pump performance, thus greatly increasing emissions.



- 4.** The always present possibility of product contamination through impurities collected by the water used in the process.
- 5.** At the end of the process, the water used is simply discarded placing the plant's environmental record at the opposite end of the company's projected renewable energy goals.

Location

Brazil

Application

Dry air system technology for use in bottling plants

Solution

Elmo Rietschle **VSI300 screw pump**

New system **redesign:**

Replacing liquid ring pump technology with dry screw vacuum pumps in a new dry air, water-less system.



(PDI) or flow and pressure on demand.

The entire package was mounted on a metallic base with a small footprint for easy implementation into existing systems.

Easy to See **Benefits**

The newly realized dry vacuum system performed brilliantly from the get go, and presented great results immediately for the bottling plant. It must also be highlighted that this new configuration driven by Elmo Rietschle's VSI300 screw vacuum pumps offers the plant the following potential savings:

- + SAVINGS OF UP TO 7 MILLION GALLONS PER YEAR
- + SAVINGS OF UP TO 74% IN ELECTRICITY USAGE PER YEAR

A New Path **Forward**

With a great working relationship already established between Elmo Rietschle and the company through a series of previously successful projects, our team of experts were very keen on helping their partner improve their processes to meet their efficiency and environmental goals. Elmo Rietschle proposed a new system redesign that was already showing great results in testing for bottling plants. This was to replace liquid ring pump technology with dry screw vacuum pumps incorporated into a new dry air system. This game changer approach would allow our customer to stop using water in the bottling process all together, save vast amounts of electricity, and minimize CO2 emissions. These improvements have the potential to propel the company to satisfy their aggressive goals of reducing their environmental footprint and energy consumption.

A Dryer **Solution**

To satisfy our customer's demands, Elmo Rietschle's engineers implemented two Dry VSI300 screw vacuum pumps equipped with an efficient 12hp WEG motor for each pump with a total 24hp and a closed liquid cooling system that reuses the water and recirculates it where needed. It is important to clarify that the water circulates only in the jacket, only for heat exchange. The water does not make any contact with the screws, it is similar to the car engine cooling system. A double stage condensate separator equipped with a filter with stainless steel components and an automatic drain were also employed to protect the pump from water and beer residues. The components were connected to a state-of-the-art micro-processed

electrical panel with a 7-inch color touchscreen HMI, two frequency converters (one for each pump) for integral derivative proportional control



In addition, the new vacuum system can power 2 bottling lines at a steady 150 torr, minimizing CO2 consumption, as well as provide a contaminant free environment.

Representatives of the bottling plant found that Elmo Rietschle's solution exceeded their expectations by offering them significant energy savings, and virtually eliminating water usage in vacuum generation. With sights already set on modernizing additional bottling plants, the company hopes that Elmo Rietschle's dry vacuum system can help them achieve their lofty goals of greatly reducing their impact on the environment in Brazil as well as globally.

