

Why to Choose Dry Vacuum Technology for Food Processing and Packaging in 2020

What are your most important assets as a company in the food processing and packaging industry? Aside from the people who run your machinery and the executives who make your decisions, you probably have two make-or-break factors:

Cycle time & quality control.

Did you know that you can make major gains in both of these critical areas just by changing your vacuum technology?

Oil and Water

Water vapor is your product's number one enemy. Whether you have a wet food product that needs to remain moist throughout its shelf life or a dry product that would be ruined with the introduction of water, you focus a good deal of time and attention on preserving your water barrier and keeping oxygen levels within proper limits.

Oil pumps are common in the food processing industry, but they make consistent performance and moisture control much more difficult. Any time you use an oil-sealed pump, you run the risk of water vapor getting into the oil mixture. This negatively impacts the longevity and performance of your vacuum, while also causing a decline in the overall quality of your product.



(O²) oxygen and water vapor get the most attention as they can readily move either from the inside of a package to the outside environment, or from the outside environment to the inside of the package. Either way they may have a detrimental effect on the quality and shelf life of a packaged product.

Source: Elmer W. Griese Jr. Cork Tech Talk Blog 2019.

Dry Means Reliable

A dry pump, by contrast, is a fixed gap construction. It doesn't require any oil to create the vacuum and there is no loss of performance. Your dry vacuum pump offers reliable and consistent results - one of the key benefits of dry versus oil sealed vacuum technology.

The Cost of Oil

Rotary vane oil pumps rely on clean, high quality oil for performance. To maintain this performance high maintenance costs are inherent in the technology, such as cost of oil, cost to dispose oil, cost of maintenance, downtime and frequent pump repairs.

Because a dry screw vacuum pump features a fixed gap, it doesn't have that problem. Five years after you start using it, the pump is performing just as well as it did on day one.



Case in Point

A company approached Leybold with an oil pump that had been causing them excessive downtime, slow cycle time, and high maintenance costs. They had already added pumps and a roots blower and had managed slight improvement on cycle times, but they weren't able to address the root problems of equipment downtime.

We were able to explain to them that their oil pump was a big part of their problem. As long as they kept using oil, they'd have to shut down periodically for oil changes, interrupting production and losing money. They'd also have to keep dealing with water vapor damaging the mechanism and hurting performance.

The Solution

We started by mapping out the customer's process and collaborating with company representatives to determine their needs. In this case, the customer wanted to significantly reduce maintenance burdens for a significant ROI.

Switching from oil sealed to dry vacuum technology was the ideal solution. It would eliminate several thousand dollars in consumables cost as well as the expenses of regular rebuilding and the impact of regular shutdowns on the company's bottom line.

With the support of our systems professionals, we were able to develop a turn-key solution that would easily integrate into the customer's existing system. We were able to:

- eliminate the customer's use of oil sealed and roots blower technology
- Reduce the total number of pumps and overall power consumption

- Reduce heat on the production floor, thanks to the auto-cooling feature of dry vacuum technology
- Bring the pump out of the pump room and onto the production floor

Moving the pump onto the floor was a particularly important element of our design because it led directly to better cycle times.

Then, for this customer, we provided on-site startup support. We helped them connect their new equipment and integrate it into their system. We also provided best practices instruction in how the customer can get the most out of the new pump technology.



The Result

With their new dry vacuum pump, the client company was able to improve its end pressures, which shortened cycle times and led to better system reliability. Their performance improved across the board and they were able to become more competitive in a highly competitive market.

Now, as a direct result of the dry vacuum pump and its effect on performance and reliability, the customer is considering full plant upgrades.