

CASE STUDY

IMPROVING VACUUM LEVELS & REDUCING CYCLE TIME FOR FREEZE DRYING APPLICATIONS

PROJECT OVERVIEW

Mercer Foods needs a rugged vacuum pump that can handle water vapor generated by the freeze drying process, while at the same time improving vacuum levels and reducing cycle times. Due to the increasing market demands for dry foods paired with the challenge of extending product shelf life, Mercer Foods was looking for a partnership with a reliable and knowledgeable vacuum pump manufacturer that had both service and aftermarket capabilities.

ABOUT MERCER FOODS

Located in the heart of the Central Valley in Modesto, CA, Mercer Foods has been a leader in the freeze-dried industry with a commitment to quality, purity, and superior customer service for over 35 years. James Mercer founded Mercer Foods in 1982 and pioneered many of the freeze drying processes still utilized by food companies around the world today. With over 47 separate patents in the US and abroad, Mercer Foods continues their tradition of innovation with a team of 250+ employees to ensure consumers receive the best freeze-dried food products.

SOLUTION

The relationship between Kinney® and Mercer Foods stems from a Plant Supervisor's visit to a Kinney booth at the PackExpo tradeshow in 2017. Mercer Foods was searching for a solution and source to assist with an expansion project that required a more efficient method to handle water vapor during the freeze drying process. Since the start of this partnership, Kinney has assisted Mercer Foods by improving their freeze drying process with specialized vacuum pump solutions as well as servicing and repairing older vacuum piston pumps on freeze dryers to help save on expansion costs.

Freeze drying is the process of dehydrating frozen foods under a vacuum so that the water vapor changes directly from a solid to a gaseous state without having to undergo the intermediate liquid state of sublimation. When Mercer Foods approached Kinney, their needs were not only to handle water vapor more efficiently during the dehydration process, but to also speed up their process cycle times. The ruggedness of Kinney's KT150 piston pump with the addition of a gas ballast and external oil filter was the ideal solution to meet Mercer Foods' expansion improvements. A typical KT pump will reach an ultimate vacuum pressure of .01 Torr with nearly full capacity at 2 Torr. With a flatter pumping curve (capacity) and deeper ultimate pressure, the KT150 exceeded all pump performance expectations.

Mercer Foods' success with the KT150 supported their decision to purchase used KDH130 and KT150 vacuum pumps from a local equipment supplier and began having some issues obtaining reliable vacuum levels. After reaching out to their neighborhood Authorized Service Center (ASC), the used vacuum pumps were brought up to rigid quality standards as well as improved reliability of vacuum level requirements for efficient production. Due to Kinney's knowledgeable application engineers, trusted product, and reliable network of distributors, Mercer Foods continues to choose Kinney as their partner in their freeze drying processes.