

Case story | Pressure Concepts

Pressure Concepts keeps North Carolina's sweet potatoes **ready for market** – and **protects investments worth millions of dollars** – with Danfoss valves

MOST reliable

valves enable a constant temperature and humidity in the potato storage.

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Sweet potatoes are increasingly popular in the United States, and North Carolina's farmers now produce about half of all the country's crop. Although the sweet potato looks like an orange version of its more popular namesake, they are not actually of the same genus as the common white potato. In fact, they are far more difficult to store than regular potatoes.

If sweet potatoes are stored at too low humidity, they dry out and become inedible. If the humidity is too high, they rot. For years, this meant that the year's crop had to be sold out within a few months of harvest. Farmers flooded the market so as not to be stuck with unsellable product, and prices tumbled as supply outstripped demand. If only there were a way to increase the storability of the sweet potatoes, then farmers could sell their harvest throughout the year and earn higher profits as supply dwindled.

Dr. Michael Boyette, a researcher at North Carolina State University, found a way when he revolutionized sweet potato storage with negative pressure ventilation and constant temperature and humidity control. Pressure Concepts, Inc., a leader in high-pressure solutions for many industries in North Carolina, worked with Boyette from the start.

The challenge: Faulty valves can stop misting – or even worse, get stuck open and destroy crops worth hundreds of thousands of dollars

Dr. Boyette's negative pressure ventilation systems rely on PLC systems to keep temperature and humidity constant. Solenoid valves release pressurized water to mister nozzles.

Jim Gallo from Pressure Concepts, Inc. tried a number of brass valves, but they seldom lasted for more than a few years before they needed to be replaced. What is worse, they sometimes got stuck open or closed.

With up to 50,000 bushels of sweet potatoes in each storage facility (at a value of roughly USD 500,000) depending on the valve's performance, growers require absolute reliability. Valve failure was not an option, and reliability was essential.

The solution: Danfoss stainless steel solenoid valves are the most reliable

After experimenting with other solutions, Gallo found that Danfoss two-way, stainless steel solenoid valves to be the most reliable on the market. He now specifies them as standard for all negative pressure ventilation facilities.

“Farmers cannot tolerate wet,” explains Gallo. “If valves get stuck open, rot can ruin sweet potatoes worth hundreds of thousands of dollars very quickly. Danfoss valves have proven to be the most reliable.”

Gallo’s got-to valve for sweet potato storage is the Danfoss VDHT valve.

The results: Hundreds of Danfoss valves all around North Carolina now protect sweet potatoes worth millions

Gallo now uses nothing but Danfoss valves for sweet potato storage systems – and hasn’t for years.

“We’ve installed hundreds of them,” he says. “Usually, we install them and forget about them. They just keep running, and we have only rarely had to touch them after installation. When there are problems, these are due to impurities in the high-pressure water. Even though they use water softeners and filters, some impurities are inevitable.”

For North Carolina’s sweet potato growers, the reliability of their storage facilities is essential to their business. Farmers can now easily store sweet potatoes for a year or more, and thus increase their profitability.



About Pressure Concepts, Inc.

Located in Charlotte, North Carolina, Pressure Concepts is one of the state’s leading providers of high-pressure solutions for a wide variety of industries. One of the firm’s specialties is humidification solutions. Pressure Concepts has cooperated with Dr. Michael Boyette since the 1980s, and has produced hundreds of negative pressure ventilation storage facilities throughout North Carolina.

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